SEQUENCE LISTING   ## 11

<110> Einat, et al

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<130> 540579-2007.2

<140> 09/905,129
<141> 2001-07-13

<150> 09/802,318
<151> 2001-03-08

<150> 60/207,821
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<150> 60/084,944
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<150> 60/085,673
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2

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6

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Cys Ala Cys Tyr Val Pro Thr Glu Val His Cys Thr Phe Arg Tyr Leu
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Thr Ser Ile Pro Asp Gly Ile Pro Ala Asn Val Glu Arg Ile Asn Leu
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Gly Tyr Asn Ser Leu Thr Arg Leu Thr Glu Asn Asp Phe Asp Gly Leu
65              70              75              80

Ser Lys Leu Glu Leu Leu Met Leu His Ser Asn Gly Ile His Arg Val
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Ser Asp Lys Thr Phe Ser Gly Leu Gln Ser Leu Gln Val Leu Lys Met
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Ser Tyr Asn Lys Val Gln Ile Ile Arg Lys Asp Thr Phe Tyr Gly Leu
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Gly Ser Leu Val Arg Leu His Leu Asp His Asn Asn Ile Glu Phe Ile
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Asn Pro Glu Ala Phe Tyr Gly Leu Thr Ser Leu Arg Leu Val His Leu
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Glu Gly Asn Arg Leu Thr Lys Leu His Pro Asp Thr Phe Val Ser Leu
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Ser Tyr Leu Gln Ile Phe Lys Thr Ser Phe Ile Lys Tyr Leu Phe Leu
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Ser Asp Asn Phe Leu Thr Ser Leu Pro Lys Glu Met Val Ser Tyr Met
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Pro Asn Leu Glu Ser Leu Tyr Leu His Gly Asn Pro Trp Thr Cys Asp
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Cys His Leu Lys Trp Leu Ser Glu Trp Met Gln Gly Asn Pro Asp Ile
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Ile Lys Cys Lys Lys Asp Arg Ser Ser Ser Ser Pro Gln Gln Cys Pro
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7

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Ser Pro Gln Asp Phe Ile Glu Pro Phe Gly Ser Leu Ser Leu Asn Met
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Thr Xaa Xaa Ser Gly Asn Lys Ala Asp Met Val Cys Ser Ile Gln Lys
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Pro Ser Arg Thr Ser Pro Thr Ala Phe Thr Glu Glu Asn Asp Tyr Ile
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Met Leu Asn Ala Ser Phe Ser Thr Asn Leu Val Cys Ser Val Asp Tyr
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Asn His Ile Gln Pro Val Trp Gln Leu Leu Ala Leu Tyr Ser Asp Ser
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Pro Leu Ile Leu Glu Arg Lys Pro Gln Leu Thr Glu Thr Pro Ser Leu
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Ser Ser Arg Tyr Lys Gln Val Ala Leu Arg Pro Glu Asp Ile Phe Thr
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Ser Ile Glu Ala Asp Val Arg Ala Asp Pro Phe Trp Phe Gln Gln Glu
          420   425   430

Lys Ile Val Leu Gln Leu Asn Arg Thr Ala Thr Thr Leu Ser Thr Leu
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Gln Ile Gln Phe Ser Thr Asp Ala Gln Ile Ala Leu Pro Arg Ala Glu
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465   470   475   480

Pro Lys Leu Glu Arg Thr Val Leu Val Gly Gly Thr Ile Ala Leu Ser
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Cys Pro Gly Lys Gly Asp Pro Ser Pro His Leu Glu Trp Leu Leu Ala
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Asp Gly Ser Lys Val Arg Ala Pro Tyr Val Ser Glu Asp Gly Arg Ile
          515   520   525

Leu Ile Asp Lys Asn Gly Lys Leu Glu Leu Gln Met Ala Asp Ser Phe
     530   535   540

Asp Ala Gly Leu Tyr His Cys Ile Ser Thr Asn Asp Ala Asp Ala Asp
545   550   555   560

8

Val Leu Thr Tyr Arg Ile Thr Val Val Glu Pro Tyr Gly Glu Ser Thr
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His Asp Ser Gly Val Gln His Thr Val Val Thr Gly Glu Thr Leu Asp
            580   585   590

Leu Pro Cys Leu Ser Thr Gly Val Pro Asp Ala Ser Ile Ser Trp Ile
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Leu Pro Gly Asn Thr Val Phe Ser Gln Pro Ser Arg Asp Arg Gln Ile
    610   615   620

Leu Asn Asn Gly Thr Leu Arg Ile Leu Gln Val Thr Pro Lys Asp Gln
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Gly His Tyr Gln Cys Val Ala Ala Asn Pro Ser Gly Ala Asp Phe Ser
            645   650   655

Ser Phe Lys Val Ser Val Gln Lys Lys Gly Gln Arg Met Val Glu His
            660   665   670

Asp Arg Glu Ala Gly Gly Ser Gly Leu Gly Glu Pro Asn Ser Ser Val
            675   680   685

Ser Leu Lys Gln Pro Ala Ser Leu Lys Leu Ser Ala Ser Ala Leu Thr
        690   695   700

Gly Ser Glu Ala Gly Lys Gln Val Ser Gly Val His Arg Lys Asn Lys
705   710   715   720

His Arg Asp Leu Ile His Arg Arg Arg Gly Asp Ser Thr Leu Arg Arg
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Phe Arg Glu His Arg Arg Gln Leu Pro Leu Ser Ala Arg Arg Ile Asp
            740   745   750

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Pro Lys Lys Gln Glu Asn Thr Thr Val Lys Pro Val Pro Leu Ala Val
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Pro Leu Val Glu Leu Thr Asp Glu Glu Lys Asp Ala Ser Gly Met Ile
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Pro Pro Asp Glu Glu Phe Met Val Leu Lys Thr Lys Ala Ser Gly Val
            805   810   815

Pro Gly Arg Ser Pro Thr Ala Asp Ser Gly Pro Val Asn His Gly Phe
            820   825   830

Met Thr Ser Ile Ala Ser Gly Thr Glu Val Ser Thr Val Asn Pro Gln
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9

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Ala Glu Ile Arg Asp Ser Ala Gln Ala Gly Arg Ala Ser Ser Gln Ser
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Ala His Pro Val Thr Gly Gly Asn Met Ala Thr Tyr Gly His Thr Asn
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Arg Pro Ser Ser Ser Asp Ile Ser Ser His Thr Thr Ala Asp Pro Ser
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Phe Ser Ser His Pro Ser Gly Ser His Thr Thr Ala Ser Ser Leu Phe
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His Ile Pro Arg Asn Asn Asn Thr Gly Asn Phe Pro Leu Ser Arg His
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Leu Gly Arg Glu Arg Thr Ile Trp Ser Arg Gly Arg Val Lys Asn
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Arg Pro Ala Ile Lys Gly Pro Ala Asn Lys Asn Val Ser Gln Val
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Glu Gly Leu Thr Val Ala Thr Ala Ala Leu Ser Val Pro Ser Ser
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Ser His Ser Ala Leu Pro Lys Thr Asn Asn Val Gly Val Ile Ala
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Glu Glu Ser Thr Thr Val Val Lys Lys Pro Leu Leu Leu Phe Lys
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Asp Lys Gln Asn Val Asp Ile Glu Ile Ile Thr Thr Thr Thr Lys
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Met Thr Ser Ala Pro Thr Ser Val Ser Leu Gly Lys Ser Pro Val
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10

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Lys Asn  Pro Tyr Gln Phe Gly  Leu Gln Lys Asn Pro  Ala Ala Lys
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Leu Pro  Lys Ile Ala Pro Leu  Leu Pro Thr Gly Gln  Ser Ser Pro
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Ser Asp  Ser Thr Thr Leu Leu  Thr Ser Pro Pro Pro  Ala Leu Ser
    1250             1255              1260

Thr Thr  Met Ala Ala Thr Gln  Asn Lys Gly Thr Glu  Val Val Ser
    1265             1270              1275

Gly Ala  Arg Ser Leu Ser Ala  Gly Lys Lys Gln Pro  Phe Thr Asn
    1280             1285              1290

Ser Ser  Pro Val Leu Pro Ser  Thr Ile Ser Lys Arg  Ser Asn Thr
    1295             1300              1305

Leu Asn  Phe Leu Ser Thr Glu  Thr Pro Thr Val Thr  Ser Pro Thr
    1310             1315              1320

Ala Thr  Ala Ser Val Ile Met  Ser Glu Thr Gln Arg  Thr Arg Ser
    1325             1330              1335

Lys Glu  Ala Lys Asp Gln Ile  Lys Gly Pro Arg Lys  Asn Arg Asn
    1340             1345              1350

Asn Ala  Asn Thr Thr Pro Arg  Gln Val Ser Gly Tyr  Ser Ala Tyr
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Ser Ala  Leu Thr Thr Ala Asp  Thr Pro Leu Ala Phe  Ser His Ser
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Pro Arg  Gln Asp Asp Gly Gly  Asn Val Ser Ala Val  Ala Tyr His
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Ser Thr  Thr Ser Leu Leu Ala  Ile Thr Glu Leu Phe  Glu Lys Tyr
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Thr Gln  Thr Leu Gly Asn Thr  Thr Ala Leu Glu Thr  Thr Leu Leu
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Ser Lys  Ser Gln Glu Ser Thr  Thr Val Lys Arg Ala  Ser Asp Thr
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Pro Pro  Pro Leu Leu Ser Ser  Gly Ala Pro Pro Val  Pro Thr Pro
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Ser Pro  Pro Pro Phe Thr Lys  Gly Val Val Thr Asp  Ser Lys Val
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Thr Ser  Ala Phe Gln Met Thr  Ser Asn Arg Val Val  Thr Ile Tyr
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Glu Ser  Ser Arg His Asn Thr  Asp Leu Gln Gln Pro  Ser Ala Glu
    1490            1495            1500

Ala Ser  Pro Asn Pro Glu Ile  Ile Thr Gly Thr Thr  Asp Ser Pro
    1505            1510            1515

Ser Asn  Leu Phe Pro Ser Thr  Ser Val Pro Ala Leu  Arg Val Asp
    1520            1525            1530

Lys Pro  Gln Asn Ser Lys Trp  Lys Pro Ser Pro Trp  Pro Glu His
    1535            1540            1545

Lys Tyr  Gln Leu Lys Ser Tyr  Ser Glu Thr Ile Glu  Lys Gly Lys
    1550            1555            1560

Arg Pro  Ala Val Ser Met Ser  Pro His Leu Ser Leu  Pro Glu Ala
    1565            1570            1575

Ser Thr  His Ala Ser His Trp  Asn Thr Gln Lys His  Ala Glu Lys
    1580            1585            1590

Ser Val  Phe Asp Lys Lys Pro  Gly Gln Asn Pro Thr  Ser Lys His
    1595            1600            1605

Leu Pro  Tyr Val Ser Leu Pro  Lys Thr Leu Leu Lys  Lys Pro Arg
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Ile Ile  Gly Gly Lys Ala Ala  Ser Phe Thr Val Pro  Ala Asn Ser
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Asp Val  Phe Leu Pro Cys Glu  Ala Val Gly Asp Pro  Leu Pro Ile
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Ile His  Trp Thr Arg Val Ser  Ser Gly Xaa Glu Ile  Ser Gln Gly
    1655            1660            1665

Thr Gln  Lys Ser Arg Phe His  Val Leu Pro Asn Gly  Thr Leu Ser
    1670            1675            1680

Ile Gln  Arg Val Ser Ile Gln  Asp Arg Gly Gln Tyr  Leu Cys Ser
    1685            1690            1695

Ala Phe  Asn Pro Leu Gly Val  Asp His Phe His Val  Ser Leu Ser
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Val Val  Phe Tyr Pro Ala Arg  Ile Leu Asp Arg His  Val Lys Glu
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12

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Ile Thr   Val His Phe Gly Ser   Thr Val Glu Leu Lys   Cys Arg Val
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Glu Gly   Met Pro Arg Pro Thr   Val Ser Trp Ile Leu   Ala Asn Gln
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Thr Val   Val Ser Glu Thr Ala   Lys Gly Ser Arg Lys   Val Trp Val
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Thr Pro   Asp Gly Thr Leu Ile   Ile Tyr Asn Leu Ser   Leu Tyr Asp
    1775                  1780                 1785

Arg Gly   Phe Tyr Lys Cys Val   Ala Ser Asn Pro Ser   Gly Gln Asp
    1790                  1795                 1800

Ser Leu   Leu Val Lys Ile Gln   Val Ile Thr Ala Pro   Pro Val Ile
    1805                  1810                 1815

Ile Glu   Gln Lys Arg Gln Ala   Ile Val Gly Val Leu   Gly Gly Ser
    1820                  1825                 1830

Leu Lys   Leu Pro Cys Thr Ala   Lys Gly Thr Pro Gln   Pro Ser Val
    1835                  1840                 1845

His Trp   Val Leu Tyr Asp Gly   Thr Glu Leu Lys Pro   Leu Gln Leu
    1850                  1855                 1860

Thr His   Ser Arg Phe Phe Leu   Tyr Pro Asn Gly Thr   Leu Tyr Ile
    1865                  1870                 1875

Arg Ser   Ile Ala Pro Ser Val   Arg Gly Thr Tyr Glu   Cys Ile Ala
    1880                  1885                 1890

Thr Ser   Ser Ser Gly Ser Glu   Arg Arg Val Val Ile   Leu Thr Val
    1895                  1900                 1905

Glu Glu   Gly Glu Thr Ile Pro   Arg Ile Glu Thr Ala   Ser Gln Lys
    1910                  1915                 1920

Trp Thr   Glu Val Asn Leu Gly   Glu Lys Leu Leu Leu   Asn Cys Ser
    1925                  1930                 1935

Ala Thr   Gly Asp Pro Lys Pro   Arg Ile Ile Trp Arg   Leu Pro Ser
    1940                  1945                 1950

Lys Ala   Val Ile Asp Gln Trp   His Arg Met Gly Ser   Arg Ile His
    1955                  1960                 1965

Val Tyr   Pro Asn Gly Ser Leu   Val Val Gly Ser Val   Thr Glu Lys
    1970                  1975                 1980

Asp Ala   Gly Asp Tyr Leu Cys   Val Ala Arg Asn Lys   Met Gly Asp
    1985                  1990                 1995

Asp Leu   Val Leu Met His Val   Arg Leu Arg Leu Thr   Pro Ala Lys
    2000                  2005                 2010
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13

Ile Glu Gln Lys Gln Tyr Phe Lys Lys Gln Val Leu His Gly Lys
    2015   2020   2025

Asp Phe Gln Val Asp Cys Lys Ala Ser Gly Ser Pro Val Pro Glu
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Val Ser Trp Ser Leu Pro Asp Gly Thr Val Leu Asn Asn Val Ala
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Gln Ala Asp Asp Ser Gly Tyr Arg Thr Lys Arg Tyr Thr Leu Phe
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His Asn Gly Thr Leu Tyr Phe Asn Asn Val Gly Met Ala Glu Glu
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Gly Asp Tyr Ile Cys Ser Ala Gln Asn Thr Leu Gly Lys Asp Glu
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Met Lys Val His Leu Thr Val Leu Thr Ala Ile Pro Arg Ile Arg
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Gln Ser Tyr Lys Thr Thr Met Arg Leu Arg Ala Gly Glu Thr Ala
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Val Leu Asp Cys Glu Val Thr Gly Glu Pro Lys Pro Asn Val Phe
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Trp Leu Leu Pro Ser Asn Asn Val Ile Ser Phe Ser Asn Asp Arg
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Phe Thr Phe His Ala Asn Arg Thr Leu Ser Ile His Lys Val Lys
    2165   2170   2175

Pro Leu Asp Ser Gly Asp Tyr Val Cys Val Ala Gln Asn Pro Ser
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Gly Asp Asp Thr Lys Thr Tyr Lys Leu Asp Ile Val Ser Lys Pro
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Pro Leu Ile Asn Gly Leu Tyr Ala Asn Lys Thr Val Ile Lys Ala
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Thr Ala Ile Arg His Ser Lys Lys Tyr Phe Asp Cys Arg Ala Asp
    2225   2230   2235

Gly Ile Pro Ser Ser Gln Val Thr Trp Ile Met Pro Gly Asn Ile
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Phe Leu Pro Ala Pro Tyr Phe Gly Ser Arg Val Thr Val His Pro
    2255   2260   2265

Asn Gly Thr Leu Glu Met Arg Asn Ile Arg Leu Ser Asp Ser Ala
    2270   2275   2280

Asp Phe Thr Cys Val Val Arg Ser Glu Gly Gly Glu Ser Val Leu
    2285   2290   2295

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Val Val  Gln Leu Glu Val Leu  Glu Met Leu Arg Arg  Pro Thr Phe
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Arg Asn  Pro Phe Asn Glu Lys  Val Ile Ala Gln Ala  Gly Lys Pro
    2315                 2320                 2325

Val Ala  Leu Asn Cys Ser Val  Asp Gly Asn Pro Pro  Pro Glu Ile
    2330                 2335                 2340

Thr Trp  Ile Leu Pro Asp Gly  Thr Gln Phe Ala Asn  Arg Pro His
    2345                 2350                 2355

Asn Ser  Pro Tyr Leu Met Ala  Gly Asn Gly Ser Leu  Ile Leu Tyr
    2360                 2365                 2370

Lys Ala  Thr Arg Asn Lys Ser  Gly Lys Tyr Arg Cys  Ala Ala Arg
    2375                 2380                 2385

Asn Lys  Val Gly Tyr Ile Glu  Lys Leu Ile Leu Leu  Glu Ile Gly
    2390                 2395                 2400

Gln Lys  Pro Val Ile Leu Thr  Tyr Glu Pro Gly Met  Val Lys Ser
    2405                 2410                 2415

Val Ser  Gly Glu Pro Leu Ser  Leu His Cys Val Ser  Asp Gly Ile
    2420                 2425                 2430

Pro Lys  Pro Asn Val Lys Trp  Thr Thr Pro Gly Gly  His Val Ile
    2435                 2440                 2445

Asp Arg  Pro Gln Val Asp Gly  Lys Tyr Ile Leu His  Glu Asn Gly
    2450                 2455                 2460

Thr Leu  Val Ile Lys Ala Thr  Thr Ala His Asp Gln  Gly Asn Tyr
    2465                 2470                 2475

Ile Cys  Arg Ala Gln Asn Ser  Val Gly Gln Ala Val  Ile Ser Val
    2480                 2485                 2490

Ser Val  Met Val Val Ala Tyr  Pro Pro Arg Ile Ile  Asn Tyr Leu
    2495                 2500                 2505

Pro Arg  Asn Met Leu Arg Arg  Thr Gly Glu Ala Met  Gln Leu His
    2510                 2515                 2520

Cys Val  Ala Leu Gly Ile Pro  Lys Pro Lys Val Thr  Trp Glu Thr
    2525                 2530                 2535

Pro Arg  His Ser Leu Leu Ser  Lys Ala Thr Ala Arg  Lys Pro His
    2540                 2545                 2550

Arg Ser  Glu Met Leu His Pro  Gln Gly Thr Leu Val  Ile Gln Asn
    2555                 2560                 2565

Leu Gln  Thr Ser Asp Ser Gly  Val Tyr Lys Cys Arg  Ala Gln Asn
    2570                 2575                 2580
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17

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18

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19

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29

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31

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32

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35

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taggaataaa gttggctata ttgagaaatt agtcatatta gaaattggcc agaagccagt    7140

tattcttacc tatgcaccag ggacagtaaa aggcatcagt ggagaatctc tatcactgca    7200

ttgtgtgtct gatggaatcc ctaagccaaa tatcaaatgg actatgccaa gtggttatgt    7260

agtagacagg cctcaaatta atgggaaata catattgcat gacaatggca ccttagtcat    7320

taaagaagca acagcttatg acagaggaaa ctatatctgt aaggctcaaa atagtgttgg    7380

tcatacactg attactgttc cagtaatgat tgtagcctac cctccccgaa ttacaaatcg    7440

tccacccagg agtattgtca ccaggacagg ggcagccttt cagctccact gtgtggcctt    7500

gggagttccc aagccagaaa tcacatggga gatgcctgac cactcccttc tctcaacggc    7560

aagtaaagag aggacacatg gaagtgagca gcttcactta caaggtaccc tagtcattca    7620

gaatccccaa acctccgatt ctgggatata caaatgcaca gcaaagaacc cacttggtag    7680

tgattatgca gcaacgtata ttcaagtaat ctgacatgaa ataataaagt caacaacatc    7740

tgggcagaat ttattttttg gaagaagttt aatcaaaggc agccataggc atgtaaatga    7800

atttgaatac atttacagta ttaaatttac aatgaacatg caaaataaaa ggacttgtaa    7860

ataaatgcat tatgaactga tgatactgat ttatttaatg gatctcaaaa caaactttta    7920

acttaaggca cttttatttt gccaacaaat aacaataaac aaacattgaa acggttcact    7980

ataaaataac aaatggctaa tgtacctgaa tttttcagta aaaaaatgaa cttctaatac    8040

cagttgccta gtgtccacct cctatcaatg ttacaagcat ggcactcaga acagagacaa    8100

tggaaaatat taaatctgca atctatgtat aaatattttg tggtttataa attttttttgc    8160

taaaacctac agaaaataag                                                8180
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<210> 9
<211> 897
<212> DNA
<213> Mus musculus

<220>
<221> misc_feature

45

<222> (1)..(897)
<223> 'n' can be any nucleotide 'a', 'c', 'g' or 't'.

<400> 9

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aagaacgttc cttcaatcag gtgaaggctc tcctcagaag atttcctgtc tctgcttatg     60

tcagctgctt gctgatctcc ctcactgcca tctgcctggt ggtcacccct gggagcaggg    120

tctgtcctcg ccgatgtgcc tgctatgtgc ccacagaggt gcactgtaca tttcgggacc    180

tgacctccat cccagacggg catcccagcc aatgtggaac gagtcaattt agggtataac    240

agcctcacta gattgacaga aaatgacttt tctggcctga gcagactgga gttactcatg    300

ctgcacagca atggcattca cagagtcagt gacaagacct tctcgggctt gcagtccttg    360

caggtcttaa aaatgagcta taacaaagtc caaataattg agaaggatac tttgtatgga    420

ctcaggagct tgacccggtt gcacctggat cacaacaaca ttgagtttat caaccccgag    480

gcgttttacg gactcacctt gctccgcttg gtacatctag aaggaaaccg gctgacaaag    540

ctccatccag acacatttgt ctctttgagc tatctccaga tatttaaaac ctccttcatt    600

aagnacctgt acttgtatga taacttcatt gacctccctc ccaaaagaaa tggtctcctc    660

tatgccaaac ctagaaagcc tttacttgca tggaaaccca tggacctgtg actgccattt    720

aaagtggttg tccgagtgga tgcagggaaa cccaggtaac tatcttgttt gtttgtttct    780

ttttttatar kacgtatttt cctcaatttc atttagaatg atatcccaaa agtcccccat    840

aacctccccc ccacttccct acctacccat tcccattttt tggccctggc attcccc       897
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<210> 10
<211> 2597
<212> PRT
<213> Rattus sp.

<220>
<221> misc_feature
<222> (1)..(2597)
<223> 'x' can be any amino acid

<400> 10

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Met Gln Val Arg Gly Arg Glu Val Ser Gly Leu Leu Ile Ser Leu Thr
1               5                   10                  15

Ala Val Cys Leu Val Val Thr Pro Gly Ser Arg Ala Cys Pro Arg Arg
            20                  25                  30

Cys Ala Cys Tyr Val Pro Thr Glu Val His Cys Thr Phe Arg Tyr Leu
        35                  40                  45
```

46

```
Thr Ser Ile Pro Asp Gly Ile Pro Ala Asn Val Glu Arg Ile Asn Leu
    50              55              60

Gly Tyr Asn Ser Leu Thr Arg Leu Thr Glu Asn Asp Phe Asp Gly Leu
65              70              75                      80

Ser Lys Leu Glu Leu Leu Met Leu His Ser Asn Gly Ile His Arg Val
            85              90                      95

Ser Asp Lys Thr Phe Ser Gly Leu Gln Ser Leu Gln Val Leu Lys Met
            100             105                 110

Ser Tyr Asn Lys Val Gln Ile Ile Arg Lys Asp Thr Phe Tyr Gly Leu
        115             120                 125

Gly Ser Leu Val Arg Leu His Leu Asp His Asn Asn Ile Glu Phe Ile
    130             135                 140

Asn Pro Glu Ala Phe Tyr Gly Leu Thr Ser Leu Arg Leu Val His Leu
145             150                 155                 160

Glu Gly Asn Arg Leu Thr Lys Leu His Pro Asp Thr Phe Val Ser Leu
            165                 170                 175

Ser Tyr Leu Gln Ile Phe Lys Thr Ser Phe Ile Lys Tyr Leu Phe Leu
        180             185                 190

Ser Asp Asn Phe Leu Thr Ser Leu Pro Lys Glu Met Val Ser Tyr Met
        195             200                 205

Pro Asn Leu Glu Ser Leu Tyr Leu His Gly Asn Pro Trp Thr Cys Asp
    210             215                 220

Cys His Leu Lys Trp Leu Ser Glu Trp Met Gln Gly Asn Pro Asp Ile
225             230                 235                 240

Ile Lys Cys Lys Lys Asp Arg Ser Ser Ser Ser Pro Gln Gln Cys Pro
            245                 250                 255

Leu Cys Met Asn Pro Arg Ile Ser Lys Gly Arg Pro Phe Ala Met Val
            260             265                 270

Pro Ser Gly Ala Phe Leu Cys Thr Lys Pro Thr Ile Asp Pro Ser Leu
    275             280                 285

Lys Ser Lys Ser Leu Val Thr Gln Glu Asp Asn Gly Ser Ala Ser Thr
    290             295                 300

Ser Pro Gln Asp Phe Ile Glu Pro Phe Gly Ser Leu Ser Leu Asn Met
305             310                 315                 320

Thr Xaa Xaa Ser Gly Asn Lys Ala Asp Met Val Cys Ser Ile Gln Lys
            325                 330                 335

Pro Ser Arg Thr Ser Pro Thr Ala Phe Thr Glu Glu Asn Asp Tyr Ile
            340                 345                 350
```

```
Met Leu Asn Ala Ser Phe Ser Thr Asn Leu Val Cys Ser Val Asp Tyr
        355                 360                 365

Asn His Ile Gln Pro Val Trp Gln Leu Leu Ala Leu Tyr Ser Asp Ser
    370                 375                 380

Pro Leu Ile Leu Glu Arg Lys Pro Gln Leu Thr Glu Thr Pro Ser Leu
385                 390                 395                 400

Ser Ser Arg Tyr Lys Gln Val Ala Leu Arg Pro Glu Asp Ile Phe Thr
            405                 410                 415

Ser Ile Glu Ala Asp Val Arg Ala Asp Pro Phe Trp Phe Gln Gln Glu
            420                 425                 430

Lys Ile Val Leu Gln Leu Asn Arg Thr Ala Thr Thr Leu Ser Thr Leu
        435                 440                 445

Gln Ile Gln Phe Ser Thr Asp Ala Gln Ile Ala Leu Pro Arg Ala Glu
    450                 455                 460

Met Arg Ala Glu Arg Leu Lys Trp Thr Met Ile Leu Met Met Asn Asn
465                 470                 475                 480

Pro Lys Leu Glu Arg Thr Val Leu Val Gly Gly Thr Ile Ala Leu Ser
            485                 490                 495

Cys Pro Gly Lys Gly Asp Pro Ser Pro His Leu Glu Trp Leu Leu Ala
            500                 505                 510

Asp Gly Ser Lys Val Arg Ala Pro Tyr Val Ser Glu Asp Gly Arg Ile
        515                 520                 525

Leu Ile Asp Lys Asn Gly Lys Leu Glu Leu Gln Met Ala Asp Ser Phe
    530                 535                 540

Asp Ala Gly Leu Tyr His Cys Ile Ser Thr Asn Asp Ala Asp Ala Asp
545                 550                 555                 560

Val Leu Thr Tyr Arg Ile Thr Val Val Glu Pro Tyr Gly Glu Ser Thr
            565                 570                 575

His Asp Ser Gly Val Gln His Thr Val Val Thr Gly Glu Thr Leu Asp
            580                 585                 590

Leu Pro Cys Leu Ser Thr Gly Val Pro Asp Ala Ser Ile Ser Trp Ile
        595                 600                 605

Leu Pro Gly Asn Thr Val Phe Ser Gln Pro Ser Arg Asp Arg Gln Ile
    610                 615                 620

Leu Asn Asn Gly Thr Leu Arg Ile Leu Gln Val Thr Pro Lys Asp Gln
625                 630                 635                 640

Gly His Tyr Gln Cys Val Ala Ala Asn Pro Ser Gly Ala Asp Phe Ser
            645                 650                 655
```

```
Ser Phe Lys Val Ser Val Gln Lys Lys Gly Gln Arg Met Val Glu His
        660             665             670

Asp Arg Glu Ala Gly Gly Ser Gly Leu Gly Glu Pro Asn Ser Ser Val
        675             680             685

Ser Leu Lys Gln Pro Ala Ser Leu Lys Leu Ser Ala Ser Ala Leu Thr
    690             695             700

Gly Ser Glu Ala Gly Lys Gln Val Ser Gly Val His Arg Lys Asn Lys
705             710             715             720

His Arg Asp Leu Ile His Arg Arg Arg Gly Asp Ser Thr Leu Arg Arg
            725             730             735

Phe Arg Glu His Arg Arg Gln Leu Pro Leu Ser Ala Arg Arg Ile Asp
            740             745             750

Pro Gln Arg Trp Ala Ala Leu Leu Glu Lys Ala Lys Lys Asn Ser Val
        755             760             765

Pro Lys Lys Gln Glu Asn Thr Thr Val Lys Pro Val Pro Leu Ala Val
    770             775             780

Pro Leu Val Glu Leu Thr Asp Glu Glu Lys Asp Ala Ser Gly Met Ile
785             790             795             800

Pro Pro Asp Glu Glu Phe Met Val Leu Lys Thr Lys Ala Ser Gly Val
            805             810             815

Pro Gly Arg Ser Pro Thr Ala Asp Ser Gly Pro Val Asn His Gly Phe
            820             825             830

Met Thr Ser Ile Ala Ser Gly Thr Glu Val Ser Thr Val Asn Pro Gln
    835             840             845

Thr Leu Gln Ser Glu His Leu Pro Asp Phe Lys Leu Phe Ser Val Thr
    850             855             860

Asn Gly Thr Ala Val Thr Lys Ser Met Asn Pro Ser Ile Ala Ser Lys
865             870             875             880

Ile Glu Asp Thr Thr Asn Gln Asn Pro Ile Ile Phe Pro Ser Val
        885             890             895

Ala Glu Ile Arg Asp Ser Ala Gln Ala Gly Arg Ala Ser Ser Gln Ser
            900             905             910

Ala His Pro Val Thr Gly Gly Asn Met Ala Thr Tyr Gly His Thr Asn
        915             920             925

Thr Tyr Ser Ser Phe Thr Ser Lys Ala Ser Thr Val Leu Gln Pro Ile
    930             935             940

Asn Pro Thr Glu Ser Tyr Gly Pro Gln Ile Pro Ile Thr Gly Val Ser
945             950             955             960
```

49

Arg Pro Ser Ser Ser Asp Ile Ser Ser His Thr Thr Ala Asp Pro Ser
              965   970   975

Phe Ser Ser His Pro Ser Gly Ser His Thr Thr Ala Ser Ser Leu Phe
          980   985   990

His Ile Pro Arg Asn Asn Asn Thr Gly Asn Phe Pro Leu Ser Arg His
      995   1000   1005

Leu Gly Arg Glu Arg Thr Ile Trp Ser Arg Gly Arg Val Lys Asn
    1010   1015   1020

Pro His Arg Thr Pro Val Leu Arg Arg His Arg His Arg Thr Val
    1025   1030   1035

Arg Pro Ala Ile Lys Gly Pro Ala Asn Lys Asn Val Ser Gln Val
    1040   1045   1050

Pro Ala Thr Glu Tyr Pro Gly Met Cys His Thr Cys Pro Ser Ala
    1055   1060   1065

Glu Gly Leu Thr Val Ala Thr Ala Ala Leu Ser Val Pro Ser Ser
    1070   1075   1080

Ser His Ser Ala Leu Pro Lys Thr Asn Asn Val Gly Val Ile Ala
    1085   1090   1095

Glu Glu Ser Thr Thr Val Val Lys Lys Pro Leu Leu Leu Phe Lys
    1100   1105   1110

Asp Lys Gln Asn Val Asp Ile Glu Ile Ile Thr Thr Thr Thr Lys
    1115   1120   1125

Tyr Ser Gly Gly Glu Ser Asn His Val Ile Pro Thr Glu Ala Ser
    1130   1135   1140

Met Thr Ser Ala Pro Thr Ser Val Ser Leu Gly Lys Ser Pro Val
    1145   1150   1155

Asp Asn Ser Gly His Leu Ser Met Pro Gly Thr Ile Gln Thr Gly
    1160   1165   1170

Lys Asp Ser Val Glu Thr Thr Pro Leu Pro Ser Pro Leu Ser Thr
    1175   1180   1185

Pro Ser Ile Pro Thr Ser Thr Lys Phe Ser Lys Arg Lys Thr Pro
    1190   1195   1200

Leu His Gln Ile Phe Val Asn Asn Gln Lys Lys Glu Gly Met Leu
    1205   1210   1215

Lys Asn Pro Tyr Gln Phe Gly Leu Gln Lys Asn Pro Ala Ala Lys
    1220   1225   1230

Leu Pro Lys Ile Ala Pro Leu Leu Pro Thr Gly Gln Ser Ser Pro
    1235   1240   1245

```
Ser Asp  Ser Thr Thr Leu Leu  Thr Ser Pro Pro Pro  Ala Leu Ser
    1250                  1255              1260

Thr Thr  Met Ala Ala Thr Gln  Asn Lys Gly Thr Glu  Val Val Ser
    1265                  1270              1275

Gly Ala  Arg Ser Leu Ser Ala  Gly Lys Lys Gln Pro  Phe Thr Asn
    1280                  1285              1290

Ser Ser  Pro Val Leu Pro Ser  Thr Ile Ser Lys Arg  Ser Asn Thr
    1295                  1300              1305

Leu Asn  Phe Leu Ser Thr Glu  Thr Pro Thr Val Thr  Ser Pro Thr
    1310                  1315              1320

Ala Thr  Ala Ser Val Ile Met  Ser Glu Thr Gln Arg  Thr Arg Ser
    1325                  1330              1335

Lys Glu  Ala Lys Asp Gln Ile  Lys Gly Pro Arg Lys  Asn Arg Asn
    1340                  1345              1350

Asn Ala  Asn Thr Thr Pro Arg  Gln Val Ser Gly Tyr  Ser Ala Tyr
    1355                  1360              1365

Ser Ala  Leu Thr Thr Ala Asp  Thr Pro Leu Ala Phe  Ser His Ser
    1370                  1375              1380

Pro Arg  Gln Asp Asp Gly Gly  Asn Val Ser Ala Val  Ala Tyr His
    1385                  1390              1395

Ser Thr  Thr Ser Leu Leu Ala  Ile Thr Glu Leu Phe  Glu Lys Tyr
    1400                  1405              1410

Thr Gln  Thr Leu Gly Asn Thr  Thr Ala Leu Glu Thr  Thr Leu Leu
    1415                  1420              1425

Ser Lys  Ser Gln Glu Ser Thr  Thr Val Lys Arg Ala  Ser Asp Thr
    1430                  1435              1440

Pro Pro  Pro Leu Leu Ser Ser  Gly Ala Pro Pro Val  Pro Thr Pro
    1445                  1450              1455

Ser Pro  Pro Pro Phe Thr Lys  Gly Val Val Thr Asp  Ser Lys Val
    1460                  1465              1470

Thr Ser  Ala Phe Gln Met Thr  Ser Asn Arg Val Val  Thr Ile Tyr
    1475                  1480              1485

Glu Ser  Ser Arg His Asn Thr  Asp Leu Gln Gln Pro  Ser Ala Glu
    1490                  1495              1500

Ala Ser  Pro Asn Pro Glu Ile  Ile Thr Gly Thr Thr  Asp Ser Pro
    1505                  1510              1515

Ser Asn  Leu Phe Pro Ser Thr  Ser Val Pro Ala Leu  Arg Val Asp
    1520                  1525              1530
```

51

Lys Pro Gln Asn Ser Lys Trp Lys Pro Ser Pro Trp Pro Glu His
    1535   1540   1545

Lys Tyr Gln Leu Lys Ser Tyr Ser Glu Thr Ile Glu Lys Gly Lys
    1550   1555   1560

Arg Pro Ala Val Ser Met Ser Pro His Leu Ser Leu Pro Glu Ala
    1565   1570   1575

Ser Thr His Ala Ser His Trp Asn Thr Gln Lys His Ala Glu Lys
    1580   1585   1590

Ser Val Phe Asp Lys Lys Pro Gly Gln Asn Pro Thr Ser Lys His
    1595   1600   1605

Leu Pro Tyr Val Ser Leu Pro Lys Thr Leu Leu Lys Lys Pro Arg
    1610   1615   1620

Ile Ile Gly Gly Lys Ala Ala Ser Phe Thr Val Pro Ala Asn Ser
    1625   1630   1635

Asp Val Phe Leu Pro Cys Glu Ala Val Gly Asp Pro Leu Pro Ile
    1640   1645   1650

Ile His Trp Thr Arg Val Ser Ser Gly Xaa Glu Ile Ser Gln Gly
    1655   1660   1665

Thr Gln Lys Ser Arg Phe His Val Leu Pro Asn Gly Thr Leu Ser
    1670   1675   1680

Ile Gln Arg Val Ser Ile Gln Asp Arg Gly Gln Tyr Leu Cys Ser
    1685   1690   1695

Ala Phe Asn Pro Leu Gly Val Asp His Phe His Val Ser Leu Ser
    1700   1705   1710

Val Val Phe Tyr Pro Ala Arg Ile Leu Asp Arg His Val Lys Glu
    1715   1720   1725

Ile Thr Val His Phe Gly Ser Thr Val Glu Leu Lys Cys Arg Val
    1730   1735   1740

Glu Gly Met Pro Arg Pro Thr Val Ser Trp Ile Leu Ala Asn Gln
    1745   1750   1755

Thr Val Val Ser Glu Thr Ala Lys Gly Ser Arg Lys Val Trp Val
    1760   1765   1770

Thr Pro Asp Gly Thr Leu Ile Ile Tyr Asn Leu Ser Leu Tyr Asp
    1775   1780   1785

Arg Gly Phe Tyr Lys Cys Val Ala Ser Asn Pro Ser Gly Gln Asp
    1790   1795   1800

Ser Leu Leu Val Lys Ile Gln Val Ile Thr Ala Pro Pro Val Ile
    1805   1810   1815

52

Ile Glu Gln Lys Arg Gln Ala Ile Val Gly Val Leu Gly Gly Ser
    1820   1825   1830

Leu Lys Leu Pro Cys Thr Ala Lys Gly Thr Pro Gln Pro Ser Val
    1835   1840   1845

His Trp Val Leu Tyr Asp Gly Thr Glu Leu Lys Pro Leu Gln Leu
    1850   1855   1860

Thr His Ser Arg Phe Phe Leu Tyr Pro Asn Gly Thr Leu Tyr Ile
    1865   1870   1875

Arg Ser Ile Ala Pro Ser Val Arg Gly Thr Tyr Glu Cys Ile Ala
    1880   1885   1890

Thr Ser Ser Ser Gly Ser Glu Arg Arg Val Val Ile Leu Thr Val
    1895   1900   1905

Glu Glu Gly Glu Thr Ile Pro Arg Ile Glu Thr Ala Ser Gln Lys
    1910   1915   1920

Trp Thr Glu Val Asn Leu Gly Glu Lys Leu Leu Leu Asn Cys Ser
    1925   1930   1935

Ala Thr Gly Asp Pro Lys Pro Arg Ile Ile Trp Arg Leu Pro Ser
    1940   1945   1950

Lys Ala Val Ile Asp Gln Trp His Arg Met Gly Ser Arg Ile His
    1955   1960   1965

Val Tyr Pro Asn Gly Ser Leu Val Val Gly Ser Val Thr Glu Lys
    1970   1975   1980

Asp Ala Gly Asp Tyr Leu Cys Val Ala Arg Asn Lys Met Gly Asp
    1985   1990   1995

Asp Leu Val Leu Met His Val Arg Leu Arg Leu Thr Pro Ala Lys
    2000   2005   2010

Ile Glu Gln Lys Gln Tyr Phe Lys Lys Gln Val Leu His Gly Lys
    2015   2020   2025

Asp Phe Gln Val Asp Cys Lys Ala Ser Gly Ser Pro Val Pro Glu
    2030   2035   2040

Val Ser Trp Ser Leu Pro Asp Gly Thr Val Leu Asn Asn Val Ala
    2045   2050   2055

Gln Ala Asp Asp Ser Gly Tyr Arg Thr Lys Arg Tyr Thr Leu Phe
    2060   2065   2070

His Asn Gly Thr Leu Tyr Phe Asn Asn Val Gly Met Ala Glu Glu
    2075   2080   2085

Gly Asp Tyr Ile Cys Ser Ala Gln Asn Thr Leu Gly Lys Asp Glu
    2090   2095   2100

53

```
Met Lys  Val His Leu Thr Val  Leu Thr Ala Ile Pro  Arg Ile Arg
    2105             2110             2115

Gln Ser  Tyr Lys Thr Thr Met  Arg Leu Arg Ala Gly  Glu Thr Ala
    2120             2125             2130

Val Leu  Asp Cys Glu Val Thr  Gly Glu Pro Lys Pro  Asn Val Phe
    2135             2140             2145

Trp Leu  Leu Pro Ser Asn Asn  Val Ile Ser Phe Ser  Asn Asp Arg
    2150             2155             2160

Phe Thr  Phe His Ala Asn Arg  Thr Leu Ser Ile His  Lys Val Lys
    2165             2170             2175

Pro Leu  Asp Ser Gly Asp Tyr  Val Cys Val Ala Gln  Asn Pro Ser
    2180             2185             2190

Gly Asp  Asp Thr Lys Thr Tyr  Lys Leu Asp Ile Val  Ser Lys Pro
    2195             2200             2205

Pro Leu  Ile Asn Gly Leu Tyr  Ala Asn Lys Thr Val  Ile Lys Ala
    2210             2215             2220

Thr Ala  Ile Arg His Ser Lys  Lys Tyr Phe Asp Cys  Arg Ala Asp
    2225             2230             2235

Gly Ile  Pro Ser Ser Gln Val  Thr Trp Ile Met Pro  Gly Asn Ile
    2240             2245             2250

Phe Leu  Pro Ala Pro Tyr Phe  Gly Ser Arg Val Thr  Val His Pro
    2255             2260             2265

Asn Gly  Thr Leu Glu Met Arg  Asn Ile Arg Leu Ser  Asp Ser Ala
    2270             2275             2280

Asp Phe  Thr Cys Val Val Arg  Ser Glu Gly Gly Glu  Ser Val Leu
    2285             2290             2295

Val Val  Gln Leu Glu Val Leu  Glu Met Leu Arg Arg  Pro Thr Phe
    2300             2305             2310

Arg Asn  Pro Phe Asn Glu Lys  Val Ile Ala Gln Ala  Gly Lys Pro
    2315             2320             2325

Val Ala  Leu Asn Cys Ser Val  Asp Gly Asn Pro Pro  Pro Glu Ile
    2330             2335             2340

Thr Trp  Ile Leu Pro Asp Gly  Thr Gln Phe Ala Asn  Arg Pro His
    2345             2350             2355

Asn Ser  Pro Tyr Leu Met Ala  Gly Asn Gly Ser Leu  Ile Leu Tyr
    2360             2365             2370

Lys Ala  Thr Arg Asn Lys Ser  Gly Lys Tyr Arg Cys  Ala Ala Arg
    2375             2380             2385
```

54

Asn Lys   Val Gly Tyr Ile Glu   Lys Leu Ile Leu Leu   Glu Ile Gly
    2390   2395   2400

Gln Lys   Pro Val Ile Leu Thr   Tyr Glu Pro Gly Met   Val Lys Ser
    2405   2410   2415

Val Ser   Gly Glu Pro Leu Ser   Leu His Cys Val Ser   Asp Gly Ile
    2420   2425   2430

Pro Lys   Pro Asn Val Lys Trp   Thr Thr Pro Gly Gly   His Val Ile
    2435   2440   2445

Asp Arg   Pro Gln Val Asp Gly   Lys Tyr Ile Leu His   Glu Asn Gly
    2450   2455   2460

Thr Leu   Val Ile Lys Ala Thr   Thr Ala His Asp Gln   Gly Asn Tyr
    2465   2470   2475

Ile Cys   Arg Ala Gln Asn Ser   Val Gly Gln Ala Val   Ile Ser Val
    2480   2485   2490

Ser Val   Met Val Val Ala Tyr   Pro Pro Arg Ile Ile   Asn Tyr Leu
    2495   2500   2505

Pro Arg   Asn Met Leu Arg Arg   Thr Gly Glu Ala Met   Gln Leu His
    2510   2515   2520

Cys Val   Ala Leu Gly Ile Pro   Lys Pro Lys Val Thr   Trp Glu Thr
    2525   2530   2535

Pro Arg   His Ser Leu Leu Ser   Lys Ala Thr Ala Arg   Lys Pro His
    2540   2545   2550

Arg Ser   Glu Met Leu His Pro   Gln Gly Thr Leu Val   Ile Gln Asn
    2555   2560   2565

Leu Gln   Thr Ser Asp Ser Gly   Val Tyr Lys Cys Arg   Ala Gln Asn
    2570   2575   2580

Leu Leu   Gly Thr Asp Tyr Ala   Thr Thr Tyr Ile Gln   Val Leu
    2585   2590   2595

<210>   11
<211>   2586
<212>   PRT
<213>   Homo sapiens

<220>
<221>   misc_feature
<222>   (1)..(2586)
<223>   'x' can be any amino acid

<400>   11

Met Lys Val Lys Gly Arg Gly Ile Thr Cys Leu Leu Val Ser Phe Ala

55

```
                 1                  5                  10                 15
Val Ile Cys Leu Val Ala Thr Pro Gly Gly Lys Ala Cys Pro Arg Arg
        20                  25                  30

Cys Ala Cys Tyr Met Pro Thr Glu Val His Cys Thr Phe Arg Tyr Leu
        35                  40                  45

Thr Ser Ile Pro Asp Ser Ile Pro Pro Asn Val Glu Arg Ile Asn Leu
    50                  55                  60

Gly Tyr Asn Ser Leu Val Arg Leu Met Glu Thr Asp Phe Ser Gly Leu
65                  70                  75                  80

Thr Lys Leu Glu Leu Leu Met Leu His Ser Asn Gly Ile His Thr Ile
            85                  90                  95

Pro Asp Lys Thr Phe Ser Asp Leu Gln Ala Leu Gln Val Leu Lys Met
            100                 105                 110

Ser Tyr Asn Lys Val Arg Lys Leu Gln Lys Asp Thr Phe Tyr Gly Leu
            115                 120                 125

Arg Ser Leu Thr Arg Leu His Met Asp His Asn Asn Ile Glu Phe Ile
    130                 135                 140

Asn Pro Glu Val Phe Tyr Gly Leu Asn Phe Leu Arg Leu Val His Leu
145                 150                 155                 160

Glu Gly Asn Gln Leu Thr Lys Leu His Pro Asp Thr Phe Val Ser Leu
            165                 170                 175

Ser Tyr Leu Gln Ile Phe Lys Ile Ser Phe Ile Lys Phe Leu Tyr Leu
            180                 185                 190

Ser Asp Asn Phe Leu Thr Ser Leu Pro Gln Glu Met Val Ser Tyr Met
            195                 200                 205

Pro Asp Leu Asp Ser Leu Tyr Leu His Gly Asn Pro Trp Thr Cys Asp
    210                 215                 220

Cys His Leu Lys Trp Leu Ser Asp Trp Ile Gln Pro Asp Val Ile Lys
225                 230                 235                 240

Cys Lys Lys Asp Arg Ser Pro Ser Ser Ala Gln Gln Cys Pro Leu Cys
            245                 250                 255

Met Asn Pro Arg Thr Ser Lys Gly Lys Pro Leu Ala Met Val Ser Ala
            260                 265                 270

Ala Ala Phe Gln Cys Ala Lys Pro Thr Ile Asp Ser Ser Leu Lys Ser
            275                 280                 285

Lys Ser Leu Thr Ile Leu Glu Asp Ser Ser Ser Ala Phe Ile Ser Pro
    290                 295                 300

Gln Gly Phe Met Ala Pro Phe Gly Ser Leu Thr Leu Asn Met Thr Asp
```

Gln Ser Gly Asn Glu Ala Asn Met Val Cys Ser Ile Gln Lys Pro Ser
            325   330   335

Arg Thr Ser Pro Ile Ala Phe Thr Glu Glu Asn Asp Tyr Ile Val Leu
            340   345   350

Asn Thr Ser Phe Ser Thr Phe Leu Val Cys Asn Ile Asp Tyr Gly His
            355   360   365

Ile Gln Pro Val Trp Gln Ile Leu Ala Leu Tyr Ser Asp Ser Pro Leu
    370   375   380

Ile Leu Glu Arg Ser His Leu Leu Ser Glu Thr Pro Gln Leu Tyr Tyr
385   390   395   400

Lys Tyr Lys Gln Val Ala Pro Lys Pro Glu Asp Ile Phe Thr Asn Ile
            405   410   415

Glu Ala Asp Leu Arg Ala Asp Pro Ser Trp Leu Met Gln Asp Gln Ile
            420   425   430

Ser Leu Gln Leu Asn Arg Thr Ala Thr Thr Phe Ser Thr Leu Gln Ile
            435   440   445

Gln Tyr Ser Ser Asp Ala Gln Ile Thr Leu Pro Arg Ala Glu Met Arg
    450   455   460

Pro Val Lys His Lys Trp Thr Met Ile Ser Arg Asp Asn Asn Thr Lys
465   470   475   480

Leu Glu His Thr Val Leu Val Gly Gly Thr Val Gly Leu Asn Cys Pro
            485   490   495

Gly Gln Gly Asp Pro Thr Pro His Val Asp Trp Leu Leu Ala Asp Gly
            500   505   510

Ser Lys Val Arg Ala Pro Tyr Val Ser Glu Asp Gly Arg Ile Leu Ile
            515   520   525

Asp Lys Ser Gly Lys Leu Glu Leu Gln Met Ala Asp Ser Phe Asp Thr
    530   535   540

Gly Val Tyr His Cys Ile Ser Ser Asn Tyr Asp Asp Ala Asp Ile Leu
545   550   555   560

Thr Tyr Arg Ile Thr Val Val Glu Pro Leu Val Glu Ala Tyr Gln Glu
            565   570   575

Asn Gly Ile His His Thr Val Phe Ile Gly Glu Thr Leu Asp Leu Pro
            580   585   590

Cys His Ser Thr Gly Ile Pro Asp Ala Ser Ile Ser Trp Val Ile Pro
            595   600   605

Gly Asn Asn Val Leu Tyr Gln Ser Ser Arg Asp Lys Lys Val Leu Asn

57

Asn Gly Thr Leu Arg Ile Leu Gln Val Thr Pro Lys Asp Gln Gly Tyr
625   630   635   640

Tyr Arg Cys Val Ala Ala Asn Pro Ser Gly Val Asp Phe Leu Ile Phe
            645   650   655

Gln Val Ser Val Lys Met Lys Gly Gln Arg Pro Leu Glu His Asp Gly
            660   665   670

Glu Thr Glu Gly Ser Gly Leu Asp Glu Ser Asn Pro Ile Ala His Leu
            675   680   685

Lys Glu Pro Pro Gly Ala Gln Leu Arg Thr Ser Ala Leu Met Glu Ala
    690   695   700

Glu Val Gly Lys His Thr Ser Ser Thr Ser Lys Arg His Asn Tyr Arg
705   710   715   720

Glu Leu Thr Leu Gln Arg Arg Gly Asp Ser Thr His Arg Arg Phe Arg
            725   730   735

Glu Asn Arg Arg His Phe Pro Pro Ser Ala Arg Arg Ile Asp Pro Gln
            740   745   750

His Trp Ala Ala Leu Leu Glu Lys Ala Lys Lys Asn Ala Met Pro Asp
            755   760   765

Lys Arg Glu Asn Thr Thr Val Ser Pro Pro Pro Val Val Thr Gln Leu
    770   775   780

Pro Asn Ile Pro Gly Glu Glu Asp Asp Ser Ser Gly Met Leu Ala Leu
785   790   795   800

His Glu Glu Phe Met Val Pro Ala Thr Lys Ala Leu Asn Leu Pro Ala
            805   810   815

Arg Thr Val Thr Ala Asp Ser Arg Thr Ile Ser Asp Ser Pro Met Thr
            820   825   830

Asn Ile Asn Tyr Gly Thr Glu Phe Ser Pro Val Val Asn Ser Gln Ile
            835   840   845

Leu Pro Pro Glu Glu Pro Thr Asp Phe Lys Leu Ser Thr Ala Ile Lys
    850   855   860

Thr Thr Ala Met Ser Lys Asn Ile Asn Pro Thr Met Ser Ser Gln Ile
865   870   875   880

Gln Gly Thr Thr Asn Gln His Ser Ser Thr Val Phe Pro Leu Leu Leu
            885   890   895

Gly Ala Thr Glu Phe Gln Asp Ser Asp Gln Met Gly Arg Gly Arg Glu
            900   905   910

His Phe Gln Ser Arg Pro Pro Ile Thr Val Arg Thr Met Ile Lys Asp

58

Val Asn Val Lys Met Leu Ser Ser Thr Thr Asn Lys Leu Leu Leu Glu
    930   935   940

Ser Val Asn Thr Thr Asn Ser His Gln Thr Ser Val Arg Glu Val Ser
945   950   955   960

Glu Pro Arg His Asn His Phe Tyr Ser His Thr Thr Gln Ile Leu Ser
                965   970   975

Thr Ser Thr Phe Pro Ser Asp Pro His Thr Ala Ala His Ser Gln Phe
            980   985   990

Pro Ile Pro Arg Asn Ser Thr Val Asn Ile Pro Leu Phe Arg Arg Phe
            995   1000   1005

Gly Arg Gln Arg Lys Ile Gly Gly Arg Gly Arg Ile Ile Ser Pro
    1010   1015   1020

Tyr Arg Thr Pro Val Leu Arg Arg His Arg Tyr Ser Ile Phe Arg
    1025   1030   1035

Ser Thr Thr Arg Gly Ser Ser Glu Lys Ser Thr Thr Ala Phe Ser
    1040   1045   1050

Ala Thr Val Leu Asn Val Thr Cys Leu Ser Cys Leu Pro Arg Glu
    1055   1060   1065

Arg Leu Thr Thr Ala Thr Ala Ala Leu Ser Phe Pro Ser Ala Ala
    1070   1075   1080

Pro Ile Thr Phe Pro Lys Ala Asp Ile Ala Arg Val Pro Ser Glu
    1085   1090   1095

Glu Ser Thr Thr Leu Val Gln Asn Pro Leu Leu Leu Leu Glu Asn
    1100   1105   1110

Lys Pro Ser Val Glu Lys Thr Thr Pro Thr Ile Lys Tyr Phe Arg
    1115   1120   1125

Thr Glu Ile Ser Gln Val Thr Pro Thr Gly Ala Val Met Thr Tyr
    1130   1135   1140

Ala Pro Thr Ser Ile Pro Met Glu Lys Thr His Lys Val Asn Ala
    1145   1150   1155

Ser Tyr Pro Arg Val Ser Ser Thr Asn Glu Ala Lys Arg Asp Ser
    1160   1165   1170

Val Ile Thr Ser Ser Leu Ser Gly Ala Ile Thr Lys Pro Pro Met
    1175   1180   1185

Thr Ile Ile Ala Ile Thr Arg Phe Ser Arg Arg Lys Ile Pro Trp
    1190   1195   1200

Gln Gln Asn Phe Val Asn Asn His Asn Pro Lys Gly Arg Leu Arg

59

Asn Gln His Lys Val Ser Leu Gln Lys Ser Thr Ala Val Met Leu
   1220   1225   1230

Pro Lys Thr Ser Pro Ala Leu Pro Gln Arg Gln Ser Ser Pro Phe
   1235   1240   1245

His Phe Thr Thr Leu Ser Thr Ser Val Met Gln Ile Pro Ser Asn
   1250   1255   1260

Thr Leu Thr Thr Ala His His Thr Thr Thr Lys Thr His Asn Pro
   1265   1270   1275

Gly Ser Leu Pro Thr Lys Lys Glu Leu Pro Phe Pro Pro Leu Asn
   1280   1285   1290

Pro Met Leu Pro Ser Ile Ile Ser Lys Asp Ser Ser Thr Lys Ser
   1295   1300   1305

Ile Ile Ser Thr Gln Thr Ala Ile Pro Ala Thr Thr Pro Thr Phe
   1310   1315   1320

Pro Ala Ser Val Ile Thr Tyr Glu Thr Gln Thr Glu Arg Ser Arg
   1325   1330   1335

Ala Gln Thr Ile Gln Arg Glu Gln Glu Pro Gln Lys Lys Asn Arg
   1340   1345   1350

Thr Asp Pro Asn Ile Ser Pro Asp Gln Ser Ser Gly Phe Thr Thr
   1355   1360   1365

Pro Thr Ala Met Thr Pro Pro Ala Leu Ala Phe Thr His Ser Pro
   1370   1375   1380

Pro Glu Asn Thr Thr Gly Ile Ser Ser Thr Ile Ser Phe His Ser
   1385   1390   1395

Arg Thr Leu Asn Leu Thr Asp Val Ile Glu Glu Leu Ala Gln Ala
   1400   1405   1410

Ser Thr Gln Thr Leu Lys Ser Thr Ile Ala Ser Glu Thr Thr Leu
   1415   1420   1425

Ser Ser Lys Ser His Gln Ser Thr Thr Thr Arg Lys Ala Ser Leu
   1430   1435   1440

Asp Thr Pro Ile Pro Pro Phe Leu Ser Ser Ser Ala Thr Leu Met
   1445   1450   1455

Pro Val Pro Ile Ser Pro Pro Phe Thr Gln Arg Ala Val Thr Asp
   1460   1465   1470

Thr Arg Gly Asp Ser His Phe Arg Leu Met Thr Asn Thr Val Val
   1475   1480   1485

Lys Leu His Glu Ser Ser Arg His Asn Leu Gln Met Pro Ser Ser

60

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        1490                    1495                    1500

Gln Leu Glu Pro Leu Thr Ser  Ser Thr Ser Asn Leu  Leu His Ser
    1505                1510                1515

Thr Pro Met Pro Ala Leu Thr  Thr Val Lys Ser Gln  Asn Ser Lys
    1520                1525                1530

Leu Thr Pro Ser Pro Trp Ala  Glu Tyr Gln Phe Trp  His Lys Pro
    1535                1540                1545

Tyr Ser Asp Ile Ala Glu Lys  Gly Lys Lys Pro Glu  Val Ser Met
    1550                1555                1560

Leu Ala Thr Thr Gly Leu Ser  Glu Ala Thr Thr Leu  Val Ser Asp
    1565                1570                1575

Trp Asp Gly Gln Lys Asn Thr  Lys Lys Ser Asp Phe  Asp Lys Lys
    1580                1585                1590

Pro Val Gln Glu Ala Thr Thr  Ser Lys Leu Leu Pro  Phe Asp Ser
    1595                1600                1605

Leu Ser Arg Tyr Ile Phe Glu  Lys Pro Arg Ile Val  Gly Gly Lys
    1610                1615                1620

Ala Ala Ser Phe Thr Ile Pro  Ala Asn Ser Asp Ala  Phe Leu Pro
    1625                1630                1635

Cys Glu Ala Val Gly Asn Pro  Leu Pro Thr Ile His  Trp Thr Arg
    1640                1645                1650

Val Ser Gly Leu Asp Leu Ser  Arg Gly Asn Gln Asn  Ser Arg Val
    1655                1660                1665

Gln Val Leu Pro Asn Gly Thr  Leu Ser Ile Gln Arg  Val Glu Ile
    1670                1675                1680

Gln Asp Arg Gly Gln Tyr Leu  Cys Ser Ala Ser Asn  Leu Phe Gly
    1685                1690                1695

Thr Asp His Leu His Val Thr  Leu Ser Val Val Ser  Tyr Pro Pro
    1700                1705                1710

Arg Ile Leu Glu Arg Arg Thr  Lys Glu Ile Thr Val  His Ser Gly
    1715                1720                1725

Ser Thr Val Glu Leu Lys Cys  Arg Ala Glu Gly Arg  Pro Ser Pro
    1730                1735                1740

Thr Val Thr Trp Ile Leu Ala  Asn Gln Thr Val Val  Ser Glu Ser
    1745                1750                1755

Ser Gln Gly Ser Arg Gln Ala  Val Val Thr Val Asp  Gly Thr Leu
    1760                1765                1770

Val Leu His Asn Leu Ser Ile  Tyr Asp Arg Gly Phe  Tyr Lys Cys
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Val Ala   Ser Asn Pro Gly Gly   Gln Asp Ser Leu Leu   Val Lys Ile
    1790   1795   1800

Gln Val   Ile Ala Ala Pro Pro   Val Ile Leu Glu Gln   Arg Arg Gln
    1805   1810   1815

Val Ile   Val Gly Thr Trp Gly   Glu Ser Leu Lys Leu   Pro Cys Thr
    1820   1825   1830

Ala Lys   Gly Thr Pro Gln Pro   Ser Val Tyr Trp Val   Leu Ser Asp
    1835   1840   1845

Gly Thr   Glu Val Lys Pro Leu   Gln Phe Thr Asn Ser   Lys Leu Phe
    1850   1855   1860

Leu Phe   Ser Asn Gly Thr Leu   Tyr Ile Arg Asn Leu   Ala Ser Ser
    1865   1870   1875

Asp Arg   Gly Thr Tyr Glu Cys   Ile Ala Thr Ser Ser   Thr Gly Ser
    1880   1885   1890

Glu Arg   Arg Val Val Met Leu   Thr Met Glu Glu Arg   Val Thr Ser
    1895   1900   1905

Pro Arg   Ile Glu Ala Ala Ser   Gln Lys Arg Thr Glu   Val Asn Phe
    1910   1915   1920

Gly Asp   Lys Leu Leu Leu Asn   Cys Ser Ala Thr Gly   Glu Pro Lys
    1925   1930   1935

Pro Gln   Ile Met Trp Arg Leu   Pro Ser Lys Ala Val   Val Asp Gln
    1940   1945   1950

Gly Ser   Trp Ile His Val Tyr   Pro Asn Gly Ser Leu   Phe Ile Gly
    1955   1960   1965

Ser Val   Thr Glu Lys Asp Ser   Gly Val Tyr Leu Cys   Val Ala Arg
    1970   1975   1980

Asn Lys   Met Gly Asp Asp Leu   Ile Leu Met His Val   Ser Leu Arg
    1985   1990   1995

Leu Lys   Pro Ala Lys Ile Asp   His Lys Gln Tyr Phe   Arg Lys Gln
    2000   2005   2010

Val Leu   His Gly Lys Asp Phe   Gln Val Asp Cys Lys   Ala Ser Gly
    2015   2020   2025

Ser Pro   Val Pro Glu Ile Ser   Trp Ser Leu Pro Asp   Gly Thr Met
    2030   2035   2040

Ile Asn   Asn Ala Met Gln Ala   Asp Asp Ser Gly His   Arg Thr Arg
    2045   2050   2055

Arg Tyr   Thr Leu Phe Asn Asn   Gly Thr Leu Tyr Phe   Asn Lys Val

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        2060                      2065                      2070

Gly Val  Ala Glu Glu Gly Asp  Tyr Thr Cys Tyr Ala  Gln Asn Thr
    2075                 2080                 2085

Leu Gly  Lys Asp Glu Met Lys  Val His Leu Thr Val  Ile Thr Ala
    2090                 2095                 2100

Ala Pro  Arg Ile Arg Gln Ser  Asn Lys Thr Asn Lys  Arg Ile Lys
    2105                 2110                 2115

Ala Gly  Asp Thr Ala Val Leu  Asp Cys Glu Val Thr  Gly Asp Pro
    2120                 2125                 2130

Lys Pro  Lys Ile Phe Trp Leu  Leu Pro Ser Asn Asp  Met Ile Ser
    2135                 2140                 2145

Phe Ser  Ile Asp Arg Tyr Thr  Phe His Ala Asn Gly  Ser Leu Thr
    2150                 2155                 2160

Ile Asn  Lys Val Lys Leu Leu  Asp Ser Gly Glu Tyr  Val Cys Val
    2165                 2170                 2175

Ala Arg  Asn Pro Ser Gly Asp  Asp Thr Lys Met Tyr  Lys Leu Asp
    2180                 2185                 2190

Val Val  Ser Lys Pro Pro Leu  Ile Asn Gly Leu Tyr  Thr Asn Arg
    2195                 2200                 2205

Thr Val  Ile Lys Ala Thr Ala  Val Arg His Ser Lys  Lys His Phe
    2210                 2215                 2220

Asp Cys  Arg Ala Glu Gly Thr  Pro Ser Pro Glu Val  Met Trp Ile
    2225                 2230                 2235

Met Pro  Asp Asn Ile Phe Leu  Thr Ala Pro Tyr Tyr  Gly Ser Arg
    2240                 2245                 2250

Ile Thr  Val His Lys Asn Gly  Thr Leu Glu Ile Arg  Asn Val Arg
    2255                 2260                 2265

Leu Ser  Asp Ser Ala Asp Phe  Ile Cys Val Ala Arg  Asn Glu Gly
    2270                 2275                 2280

Gly Glu  Ser Val Leu Val Val  Gln Leu Glu Val Leu  Glu Met Leu
    2285                 2290                 2295

Arg Arg  Pro Thr Phe Arg Asn  Pro Phe Asn Glu Lys  Ile Val Ala
    2300                 2305                 2310

Gln Leu  Gly Lys Ser Thr Ala  Leu Asn Cys Ser Val  Asp Gly Asn
    2315                 2320                 2325

Pro Pro  Pro Glu Ile Ile Trp  Ile Leu Pro Asn Gly  Thr Arg Phe
    2330                 2335                 2340

Ser Asn  Gly Pro Gln Ser Tyr  Gln Tyr Leu Ile Ala  Ser Asn Gly
```

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        2345                      2350                      2355

    Ser Phe  Ile Ile Ser Lys Thr  Thr Arg Glu Asp Ala  Gly Lys Tyr
        2360                      2365                      2370

    Arg Cys  Ala Ala Arg Asn Lys  Val Gly Tyr Ile Glu  Lys Leu Val
        2375                      2380                      2385

    Ile Leu  Glu Ile Gly Gln Lys  Pro Val Ile Leu Thr  Tyr Ala Pro
        2390                      2395                      2400

    Gly Thr  Val Lys Gly Ile Ser  Gly Glu Ser Leu Ser  Leu His Cys
        2405                      2410                      2415

    Val Ser  Asp Gly Ile Pro Lys  Pro Asn Ile Lys Trp  Thr Met Pro
        2420                      2425                      2430

    Ser Gly  Tyr Val Val Asp Arg  Pro Gln Ile Asn Gly  Lys Tyr Ile
        2435                      2440                      2445

    Leu His  Asp Asn Gly Thr Leu  Val Ile Lys Glu Ala  Thr Ala Tyr
        2450                      2455                      2460

    Asp Arg  Gly Asn Tyr Ile Cys  Lys Ala Gln Asn Ser  Val Gly His
        2465                      2470                      2475

    Thr Leu  Ile Thr Val Pro Val  Met Ile Val Ala Tyr  Pro Pro Arg
        2480                      2485                      2490

    Ile Thr  Asn Arg Pro Pro Arg  Ser Ile Val Thr Arg  Thr Gly Ala
        2495                      2500                      2505

    Ala Phe  Gln Leu His Cys Val  Ala Leu Gly Val Pro  Lys Pro Glu
        2510                      2515                      2520

    Ile Thr  Trp Glu Met Pro Asp  His Ser Leu Leu Ser  Thr Ala Ser
        2525                      2530                      2535

    Lys Glu  Arg Thr His Gly Ser  Glu Gln Leu His Leu  Gln Gly Thr
        2540                      2545                      2550

    Leu Val  Ile Gln Asn Pro Gln  Thr Ser Asp Ser Gly  Ile Tyr Lys
        2555                      2560                      2565

    Cys Thr  Ala Lys Asn Pro Leu  Gly Ser Asp Tyr Ala  Ala Thr Tyr
        2570                      2575                      2580

    Ile Gln  Val
        2585

<210>   12
<211>   236
<212>   PRT
<213>   Mus musculus

<220>
<221>   misc_feature
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<222> (1)..(236)
<223> 'x' can be any amino acid

<400> 12

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Met Gln Lys Arg Gly Arg Glu Val Ser Cys Leu Leu Ile Ser Leu Thr
1               5                   10                  15

Ala Ile Cys Leu Val Val Thr Pro Gly Ser Arg Val Cys Pro Arg Arg
            20                  25                  30

Cys Ala Cys Tyr Val Pro Thr Glu Val His Cys Thr Phe Arg Asp Leu
            35                  40                  45

Thr Ser Ile Pro Asp Gly Pro Ala Asn Val Glu Arg Val Asn Leu Gly
    50                  55                  60

Tyr Asn Ser Leu Thr Arg Leu Thr Glu Asn Asp Phe Ser Gly Leu Ser
65                  70                  75                  80

Arg Leu Glu Leu Leu Met Leu His Ser Asn Gly Ile His Arg Val Ser
            85                  90                  95

Asp Lys Thr Phe Ser Gly Leu Gln Ser Leu Gln Val Leu Lys Met Ser
            100                 105                 110

Tyr Asn Lys Val Gln Ile Ile Glu Lys Asp Thr Leu Tyr Gly Leu Arg
            115                 120                 125

Ser Leu Thr Arg Leu His Leu Asp His Asn Asn Ile Glu Phe Ile Asn
    130                 135                 140

Pro Glu Ala Phe Tyr Gly Leu Thr Leu Leu Arg Leu Val His Leu Glu
145                 150                 155                 160

Gly Asn Arg Leu Thr Lys Leu His Pro Asp Thr Phe Val Ser Leu Ser
            165                 170                 175

Tyr Leu Gln Ile Phe Lys Thr Ser Phe Ile Lys Xaa Leu Tyr Leu Tyr
            180                 185                 190

Asp Asn Phe Thr Ser Leu Pro Lys Glu Met Val Ser Ser Met Pro Asn
            195                 200                 205

Leu Glu Ser Leu Tyr Leu His Gly Asn Pro Trp Thr Cys Asp Cys His
    210                 215                 220

Leu Lys Trp Leu Ser Glu Trp Met Gln Gly Asn Pro
225                 230                 235
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<210> 13
<211> 2597
<212> PRT
<213> Rattus sp.

<220>

<221> misc_feature
<222> (1)..(2597)
<223> 'x' can be any amino acid

<400> 13

Met Gln Val Arg Gly Arg Glu Val Ser Gly Leu Leu Ile Ser Leu Thr
1   5   10   15

Ala Val Cys Leu Val Val Thr Pro Gly Ser Arg Ala Cys Pro Arg Arg
            20   25   30

Cys Ala Cys Tyr Val Pro Thr Glu Val His Cys Thr Phe Arg Tyr Leu
        35   40   45

Thr Ser Ile Pro Asp Gly Ile Pro Ala Asn Val Glu Arg Ile Asn Leu
    50   55   60

Gly Tyr Asn Ser Leu Thr Arg Leu Thr Glu Asn Asp Phe Asp Gly Leu
65   70   75   80

Ser Lys Leu Glu Leu Leu Met Leu His Ser Asn Gly Ile His Arg Val
            85   90   95

Ser Asp Lys Thr Phe Ser Gly Leu Gln Ser Leu Gln Val Leu Lys Met
        100   105   110

Ser Tyr Asn Lys Val Gln Ile Ile Arg Lys Asp Thr Phe Tyr Gly Leu
        115   120   125

Gly Ser Leu Val Arg Leu His Leu Asp His Asn Asn Ile Glu Phe Ile
    130   135   140

Asn Pro Glu Ala Phe Tyr Gly Leu Thr Ser Leu Arg Leu Val His Leu
145   150   155   160

Glu Gly Asn Arg Leu Thr Lys Leu His Pro Asp Thr Phe Val Ser Leu
            165   170   175

Ser Tyr Leu Gln Ile Phe Lys Thr Ser Phe Ile Lys Tyr Leu Phe Leu
        180   185   190

Ser Asp Asn Phe Leu Thr Ser Leu Pro Lys Glu Met Val Ser Tyr Met
        195   200   205

Pro Asn Leu Glu Ser Leu Tyr Leu His Gly Asn Pro Trp Thr Cys Asp
    210   215   220

Cys His Leu Lys Trp Leu Ser Glu Trp Met Gln Gly Asn Pro Asp Ile
225   230   235   240

Ile Lys Cys Lys Lys Asp Arg Ser Ser Ser Ser Pro Gln Gln Cys Pro
            245   250   255

Leu Cys Met Asn Pro Arg Ile Ser Lys Gly Arg Pro Phe Ala Met Val
            260   265   270

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Pro Ser Gly Ala Phe Leu Cys Thr Lys Pro Thr Ile Asp Pro Ser Leu
        275   280   285

Lys Ser Lys Ser Leu Val Thr Gln Glu Asp Asn Gly Ser Ala Ser Thr
        290   295   300

Ser Pro Gln Asp Phe Ile Glu Pro Phe Gly Ser Leu Ser Leu Asn Met
305   310   315   320

Thr Xaa Xaa Ser Gly Asn Lys Ala Asp Met Val Cys Ser Ile Gln Lys
                325   330   335

Pro Ser Arg Thr Ser Pro Thr Ala Phe Thr Glu Glu Asn Asp Tyr Ile
            340   345   350

Met Leu Asn Ala Ser Phe Ser Thr Asn Leu Val Cys Ser Val Asp Tyr
            355   360   365

Asn His Ile Gln Pro Val Trp Gln Leu Leu Ala Leu Tyr Ser Asp Ser
        370   375   380

Pro Leu Ile Leu Glu Arg Lys Pro Gln Leu Thr Glu Thr Pro Ser Leu
385   390   395   400

Ser Ser Arg Tyr Lys Gln Val Ala Leu Arg Pro Glu Asp Ile Phe Thr
            405   410   415

Ser Ile Glu Ala Asp Val Arg Ala Asp Pro Phe Trp Phe Gln Gln Glu
            420   425   430

Lys Ile Val Leu Gln Leu Asn Arg Thr Ala Thr Thr Leu Ser Thr Leu
        435   440   445

Gln Ile Gln Phe Ser Thr Asp Ala Gln Ile Ala Leu Pro Arg Ala Glu
        450   455   460

Met Arg Ala Glu Arg Leu Lys Trp Thr Met Ile Leu Met Met Asn Asn
465   470   475   480

Pro Lys Leu Glu Arg Thr Val Leu Val Gly Gly Thr Ile Ala Leu Ser
            485   490   495

Cys Pro Gly Lys Gly Asp Pro Ser Pro His Leu Glu Trp Leu Leu Ala
            500   505   510

Asp Gly Ser Lys Val Arg Ala Pro Tyr Val Ser Glu Asp Gly Arg Ile
            515   520   525

Leu Ile Asp Lys Asn Gly Lys Leu Glu Leu Gln Met Ala Asp Ser Phe
        530   535   540

Asp Ala Gly Leu Tyr His Cys Ile Ser Thr Asn Asp Ala Asp Ala Asp
545   550   555   560

Val Leu Thr Tyr Arg Ile Thr Val Val Glu Pro Tyr Gly Glu Ser Thr
                565   570   575

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His Asp Ser Gly Val Gln His Thr Val Val Thr Gly Glu Thr Leu Asp
            580   585   590

Leu Pro Cys Leu Ser Thr Gly Val Pro Asp Ala Ser Ile Ser Trp Ile
            595   600   605

Leu Pro Gly Asn Thr Val Phe Ser Gln Pro Ser Arg Asp Arg Gln Ile
        610   615   620

Leu Asn Asn Gly Thr Leu Arg Ile Leu Gln Val Thr Pro Lys Asp Gln
625   630   635   640

Gly His Tyr Gln Cys Val Ala Ala Asn Pro Ser Gly Ala Asp Phe Ser
                645   650   655

Ser Phe Lys Val Ser Val Gln Lys Lys Gly Gln Arg Met Val Glu His
            660   665   670

Asp Arg Glu Ala Gly Gly Ser Gly Leu Gly Glu Pro Asn Ser Ser Val
        675   680   685

Ser Leu Lys Gln Pro Ala Ser Leu Lys Leu Ser Ala Ser Ala Leu Thr
        690   695   700

Gly Ser Glu Ala Gly Lys Gln Val Ser Gly Val His Arg Lys Asn Lys
705   710   715   720

His Arg Asp Leu Ile His Arg Arg Arg Gly Asp Ser Thr Leu Arg Arg
            725   730   735

Phe Arg Glu His Arg Arg Gln Leu Pro Leu Ser Ala Arg Arg Ile Asp
            740   745   750

Pro Gln Arg Trp Ala Ala Leu Leu Glu Lys Ala Lys Lys Asn Ser Val
        755   760   765

Pro Lys Lys Gln Glu Asn Thr Thr Val Lys Pro Val Pro Leu Ala Val
        770   775   780

Pro Leu Val Glu Leu Thr Asp Glu Glu Lys Asp Ala Ser Gly Met Ile
785   790   795   800

Pro Pro Asp Glu Glu Phe Met Val Leu Lys Thr Lys Ala Ser Gly Val
                805   810   815

Pro Gly Arg Ser Pro Thr Ala Asp Ser Gly Pro Val Asn His Gly Phe
            820   825   830

Met Thr Ser Ile Ala Ser Gly Thr Glu Val Ser Thr Val Asn Pro Gln
        835   840   845

Thr Leu Gln Ser Glu His Leu Pro Asp Phe Lys Leu Phe Ser Val Thr
        850   855   860

Asn Gly Thr Ala Val Thr Lys Ser Met Asn Pro Ser Ile Ala Ser Lys
865   870   875   880

Ile Glu Asp Thr Thr Asn Gln Asn Pro Ile Ile Ile Phe Pro Ser Val
            885   890   895

Ala Glu Ile Arg Asp Ser Ala Gln Ala Gly Arg Ala Ser Ser Gln Ser
        900   905   910

Ala His Pro Val Thr Gly Gly Asn Met Ala Thr Tyr Gly His Thr Asn
        915   920   925

Thr Tyr Ser Ser Phe Thr Ser Lys Ala Ser Thr Val Leu Gln Pro Ile
        930   935   940

Asn Pro Thr Glu Ser Tyr Gly Pro Gln Ile Pro Ile Thr Gly Val Ser
945   950   955   960

Arg Pro Ser Ser Ser Asp Ile Ser Ser His Thr Thr Ala Asp Pro Ser
          965   970   975

Phe Ser Ser His Pro Ser Gly Ser His Thr Thr Ala Ser Ser Leu Phe
        980   985   990

His Ile Pro Arg Asn Asn Asn Thr Gly Asn Phe Pro Leu Ser Arg His
        995   1000   1005

Leu Gly Arg Glu Arg Thr Ile Trp Ser Arg Gly Arg Val Lys Asn
      1010   1015   1020

Pro His Arg Thr Pro Val Leu Arg Arg His Arg His Arg Thr Val
      1025   1030   1035

Arg Pro Ala Ile Lys Gly Pro Ala Asn Lys Asn Val Ser Gln Val
      1040   1045   1050

Pro Ala Thr Glu Tyr Pro Gly Met Cys His Thr Cys Pro Ser Ala
      1055   1060   1065

Glu Gly Leu Thr Val Ala Thr Ala Ala Leu Ser Val Pro Ser Ser
      1070   1075   1080

Ser His Ser Ala Leu Pro Lys Thr Asn Asn Val Gly Val Ile Ala
      1085   1090   1095

Glu Glu Ser Thr Thr Val Val Lys Lys Pro Leu Leu Leu Phe Lys
      1100   1105   1110

Asp Lys Gln Asn Val Asp Ile Glu Ile Ile Thr Thr Thr Thr Lys
      1115   1120   1125

Tyr Ser Gly Gly Glu Ser Asn His Val Ile Pro Thr Glu Ala Ser
      1130   1135   1140

Met Thr Ser Ala Pro Thr Ser Val Ser Leu Gly Lys Ser Pro Val
      1145   1150   1155

Asp Asn Ser Gly His Leu Ser Met Pro Gly Thr Ile Gln Thr Gly
      1160   1165   1170

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Lys Asp  Ser Val Glu Thr Thr  Pro Leu Pro Ser Pro  Leu Ser Thr
    1175                1180              1185

Pro Ser  Ile Pro Thr Ser Thr  Lys Phe Ser Lys Arg  Lys Thr Pro
    1190                1195              1200

Leu His  Gln Ile Phe Val Asn  Asn Gln Lys Lys Glu  Gly Met Leu
    1205                1210              1215

Lys Asn  Pro Tyr Gln Phe Gly  Leu Gln Lys Asn Pro  Ala Ala Lys
    1220                1225              1230

Leu Pro  Lys Ile Ala Pro Leu  Leu Pro Thr Gly Gln  Ser Ser Pro
    1235                1240              1245

Ser Asp  Ser Thr Thr Leu Leu  Thr Ser Pro Pro Pro  Ala Leu Ser
    1250                1255              1260

Thr Thr  Met Ala Ala Thr Gln  Asn Lys Gly Thr Glu  Val Val Ser
    1265                1270              1275

Gly Ala  Arg Ser Leu Ser Ala  Gly Lys Lys Gln Pro  Phe Thr Asn
    1280                1285              1290

Ser Ser  Pro Val Leu Pro Ser  Thr Ile Ser Lys Arg  Ser Asn Thr
    1295                1300              1305

Leu Asn  Phe Leu Ser Thr Glu  Thr Pro Thr Val Thr  Ser Pro Thr
    1310                1315              1320

Ala Thr  Ala Ser Val Ile Met  Ser Glu Thr Gln Arg  Thr Arg Ser
    1325                1330              1335

Lys Glu  Ala Lys Asp Gln Ile  Lys Gly Pro Arg Lys  Asn Arg Asn
    1340                1345              1350

Asn Ala  Asn Thr Thr Pro Arg  Gln Val Ser Gly Tyr  Ser Ala Tyr
    1355                1360              1365

Ser Ala  Leu Thr Thr Ala Asp  Thr Pro Leu Ala Phe  Ser His Ser
    1370                1375              1380

Pro Arg  Gln Asp Asp Gly Gly  Asn Val Ser Ala Val  Ala Tyr His
    1385                1390              1395

Ser Thr  Thr Ser Leu Leu Ala  Ile Thr Glu Leu Phe  Glu Lys Tyr
    1400                1405              1410

Thr Gln  Thr Leu Gly Asn Thr  Thr Ala Leu Glu Thr  Thr Leu Leu
    1415                1420              1425

Ser Lys  Ser Gln Glu Ser Thr  Thr Val Lys Arg Ala  Ser Asp Thr
    1430                1435              1440

Pro Pro  Pro Leu Leu Ser Ser  Gly Ala Pro Pro Val  Pro Thr Pro
    1445                1450              1455
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Ser Pro  Pro Pro Phe Thr Lys  Gly Val Val Thr Asp  Ser Lys Val
    1460             1465              1470

Thr Ser  Ala Phe Gln Met Thr  Ser Asn Arg Val Val  Thr Ile Tyr
    1475             1480              1485

Glu Ser  Ser Arg His Asn Thr  Asp Leu Gln Gln Pro  Ser Ala Glu
    1490             1495              1500

Ala Ser  Pro Asn Pro Glu Ile  Ile Thr Gly Thr Thr  Asp Ser Pro
    1505             1510              1515

Ser Asn  Leu Phe Pro Ser Thr  Ser Val Pro Ala Leu  Arg Val Asp
    1520             1525              1530

Lys Pro  Gln Asn Ser Lys Trp  Lys Pro Ser Pro Trp  Pro Glu His
    1535             1540              1545

Lys Tyr  Gln Leu Lys Ser Tyr  Ser Glu Thr Ile Glu  Lys Gly Lys
    1550             1555              1560

Arg Pro  Ala Val Ser Met Ser  Pro His Leu Ser Leu  Pro Glu Ala
    1565             1570              1575

Ser Thr  His Ala Ser His Trp  Asn Thr Gln Lys His  Ala Glu Lys
    1580             1585              1590

Ser Val  Phe Asp Lys Lys Pro  Gly Gln Asn Pro Thr  Ser Lys His
    1595             1600              1605

Leu Pro  Tyr Val Ser Leu Pro  Lys Thr Leu Leu Lys  Lys Pro Arg
    1610             1615              1620

Ile Ile  Gly Gly Lys Ala Ala  Ser Phe Thr Val Pro  Ala Asn Ser
    1625             1630              1635

Asp Val  Phe Leu Pro Cys Glu  Ala Val Gly Asp Pro  Leu Pro Ile
    1640             1645              1650

Ile His  Trp Thr Arg Val Ser  Ser Gly Xaa Glu Ile  Ser Gln Gly
    1655             1660              1665

Thr Gln  Lys Ser Arg Phe His  Val Leu Pro Asn Gly  Thr Leu Ser
    1670             1675              1680

Ile Gln  Arg Val Ser Ile Gln  Asp Arg Gly Gln Tyr  Leu Cys Ser
    1685             1690              1695

Ala Phe  Asn Pro Leu Gly Val  Asp His Phe His Val  Ser Leu Ser
    1700             1705              1710

Val Val  Phe Tyr Pro Ala Arg  Ile Leu Asp Arg His  Val Lys Glu
    1715             1720              1725

Ile Thr  Val His Phe Gly Ser  Thr Val Glu Leu Lys  Cys Arg Val
    1730             1735              1740
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Glu Gly  Met Pro Arg Pro Thr  Val Ser Trp Ile Leu  Ala Asn Gln
    1745              1750              1755

Thr Val  Val Ser Glu Thr Ala  Lys Gly Ser Arg Lys  Val Trp Val
    1760              1765              1770

Thr Pro  Asp Gly Thr Leu Ile  Ile Tyr Asn Leu Ser  Leu Tyr Asp
    1775              1780              1785

Arg Gly  Phe Tyr Lys Cys Val  Ala Ser Asn Pro Ser  Gly Gln Asp
    1790              1795              1800

Ser Leu  Leu Val Lys Ile Gln  Val Ile Thr Ala Pro  Pro Val Ile
    1805              1810              1815

Ile Glu  Gln Lys Arg Gln Ala  Ile Val Gly Val Leu  Gly Gly Ser
    1820              1825              1830

Leu Lys  Leu Pro Cys Thr Ala  Lys Gly Thr Pro Gln  Pro Ser Val
    1835              1840              1845

His Trp  Val Leu Tyr Asp Gly  Thr Glu Leu Lys Pro  Leu Gln Leu
    1850              1855              1860

Thr His  Ser Arg Phe Phe Leu  Tyr Pro Asn Gly Thr  Leu Tyr Ile
    1865              1870              1875

Arg Ser  Ile Ala Pro Ser Val  Arg Gly Thr Tyr Glu  Cys Ile Ala
    1880              1885              1890

Thr Ser  Ser Ser Gly Ser Glu  Arg Arg Val Val Ile  Leu Thr Val
    1895              1900              1905

Glu Glu  Gly Glu Thr Ile Pro  Arg Ile Glu Thr Ala  Ser Gln Lys
    1910              1915              1920

Trp Thr  Glu Val Asn Leu Gly  Glu Lys Leu Leu Leu  Asn Cys Ser
    1925              1930              1935

Ala Thr  Gly Asp Pro Lys Pro  Arg Ile Ile Trp Arg  Leu Pro Ser
    1940              1945              1950

Lys Ala  Val Ile Asp Gln Trp  His Arg Met Gly Ser  Arg Ile His
    1955              1960              1965

Val Tyr  Pro Asn Gly Ser Leu  Val Val Gly Ser Val  Thr Glu Lys
    1970              1975              1980

Asp Ala  Gly Asp Tyr Leu Cys  Val Ala Arg Asn Lys  Met Gly Asp
    1985              1990              1995

Asp Leu  Val Leu Met His Val  Arg Leu Arg Leu Thr  Pro Ala Lys
    2000              2005              2010

Ile Glu  Gln Lys Gln Tyr Phe  Lys Lys Gln Val Leu  His Gly Lys
    2015              2020              2025
```

Asp Phe Gln Val Asp Cys Lys Ala Ser Gly Ser Pro Val Pro Glu
    2030   2035   2040

Val Ser Trp Ser Leu Pro Asp Gly Thr Val Leu Asn Asn Val Ala
    2045   2050   2055

Gln Ala Asp Asp Ser Gly Tyr Arg Thr Lys Arg Tyr Thr Leu Phe
    2060   2065   2070

His Asn Gly Thr Leu Tyr Phe Asn Asn Val Gly Met Ala Glu Glu
    2075   2080   2085

Gly Asp Tyr Ile Cys Ser Ala Gln Asn Thr Leu Gly Lys Asp Glu
    2090   2095   2100

Met Lys Val His Leu Thr Val Leu Thr Ala Ile Pro Arg Ile Arg
    2105   2110   2115

Gln Ser Tyr Lys Thr Thr Met Arg Leu Arg Ala Gly Glu Thr Ala
    2120   2125   2130

Val Leu Asp Cys Glu Val Thr Gly Glu Pro Lys Pro Asn Val Phe
    2135   2140   2145

Trp Leu Leu Pro Ser Asn Asn Val Ile Ser Phe Ser Asn Asp Arg
    2150   2155   2160

Phe Thr Phe His Ala Asn Arg Thr Leu Ser Ile His Lys Val Lys
    2165   2170   2175

Pro Leu Asp Ser Gly Asp Tyr Val Cys Val Ala Gln Asn Pro Ser
    2180   2185   2190

Gly Asp Asp Thr Lys Thr Tyr Lys Leu Asp Ile Val Ser Lys Pro
    2195   2200   2205

Pro Leu Ile Asn Gly Leu Tyr Ala Asn Lys Thr Val Ile Lys Ala
    2210   2215   2220

Thr Ala Ile Arg His Ser Lys Lys Tyr Phe Asp Cys Arg Ala Asp
    2225   2230   2235

Gly Ile Pro Ser Ser Gln Val Thr Trp Ile Met Pro Gly Asn Ile
    2240   2245   2250

Phe Leu Pro Ala Pro Tyr Phe Gly Ser Arg Val Thr Val His Pro
    2255   2260   2265

Asn Gly Thr Leu Glu Met Arg Asn Ile Arg Leu Ser Asp Ser Ala
    2270   2275   2280

Asp Phe Thr Cys Val Val Arg Ser Glu Gly Gly Glu Ser Val Leu
    2285   2290   2295

Val Val Gln Leu Glu Val Leu Glu Met Leu Arg Arg Pro Thr Phe
    2300   2305   2310

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Arg Asn  Pro Phe Asn Glu Lys  Val Ile Ala Gln Ala  Gly Lys Pro
    2315             2320             2325

Val Ala  Leu Asn Cys Ser Val  Asp Gly Asn Pro Pro  Pro Glu Ile
    2330             2335             2340

Thr Trp  Ile Leu Pro Asp Gly  Thr Gln Phe Ala Asn  Arg Pro His
    2345             2350             2355

Asn Ser  Pro Tyr Leu Met Ala  Gly Asn Gly Ser Leu  Ile Leu Tyr
    2360             2365             2370

Lys Ala  Thr Arg Asn Lys Ser  Gly Lys Tyr Arg Cys  Ala Ala Arg
    2375             2380             2385

Asn Lys  Val Gly Tyr Ile Glu  Lys Leu Ile Leu Leu  Glu Ile Gly
    2390             2395             2400

Gln Lys  Pro Val Ile Leu Thr  Tyr Glu Pro Gly Met  Val Lys Ser
    2405             2410             2415

Val Ser  Gly Glu Pro Leu Ser  Leu His Cys Val Ser  Asp Gly Ile
    2420             2425             2430

Pro Lys  Pro Asn Val Lys Trp  Thr Thr Pro Gly Gly  His Val Ile
    2435             2440             2445

Asp Arg  Pro Gln Val Asp Gly  Lys Tyr Ile Leu His  Glu Asn Gly
    2450             2455             2460

Thr Leu  Val Ile Lys Ala Thr  Thr Ala His Asp Gln  Gly Asn Tyr
    2465             2470             2475

Ile Cys  Arg Ala Gln Asn Ser  Val Gly Gln Ala Val  Ile Ser Val
    2480             2485             2490

Ser Val  Met Val Val Ala Tyr  Pro Pro Arg Ile Ile  Asn Tyr Leu
    2495             2500             2505

Pro Arg  Asn Met Leu Arg Arg  Thr Gly Glu Ala Met  Gln Leu His
    2510             2515             2520

Cys Val  Ala Leu Gly Ile Pro  Lys Pro Lys Val Thr  Trp Glu Thr
    2525             2530             2535

Pro Arg  His Ser Leu Leu Ser  Lys Ala Thr Ala Arg  Lys Pro His
    2540             2545             2550

Arg Ser  Glu Met Leu His Pro  Gln Gly Thr Leu Val  Ile Gln Asn
    2555             2560             2565

Leu Gln  Thr Ser Asp Ser Gly  Val Tyr Lys Cys Arg  Ala Gln Asn
    2570             2575             2580

Leu Leu  Gly Thr Asp Tyr Ala  Thr Thr Tyr Ile Gln  Val Leu
    2585             2590             2595
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<210> 14
<211> 2586
<212> PRT
<213> Homo sapiens

<400> 14

Met Lys Val Lys Gly Arg Gly Ile Thr Cys Leu Leu Val Ser Phe Ala
1   5   10   15

Val Ile Cys Leu Val Ala Thr Pro Gly Gly Lys Ala Cys Pro Arg Arg
                20   25   30

Cys Ala Cys Tyr Met Pro Thr Glu Val His Cys Thr Phe Arg Tyr Leu
            35   40   45

Thr Ser Ile Pro Asp Ser Ile Pro Pro Asn Val Glu Arg Ile Asn Leu
        50   55   60

Gly Tyr Asn Ser Leu Val Arg Leu Met Glu Thr Asp Phe Ser Gly Leu
65   70   75   80

Thr Lys Leu Glu Leu Leu Met Leu His Ser Asn Gly Ile His Thr Ile
                85   90   95

Pro Asp Lys Thr Phe Ser Asp Leu Gln Ala Leu Gln Val Leu Lys Met
            100   105   110

Ser Tyr Asn Lys Val Arg Lys Leu Gln Lys Asp Thr Phe Tyr Gly Leu
            115   120   125

Arg Ser Leu Thr Arg Leu His Met Asp His Asn Asn Ile Glu Phe Ile
        130   135   140

Asn Pro Glu Val Phe Tyr Gly Leu Asn Phe Leu Arg Leu Val His Leu
145   150   155   160

Glu Gly Asn Gln Leu Thr Lys Leu His Pro Asp Thr Phe Val Ser Leu
                165   170   175

Ser Tyr Leu Gln Ile Phe Lys Ile Ser Phe Ile Lys Phe Leu Tyr Leu
            180   185   190

Ser Asp Asn Phe Leu Thr Ser Leu Pro Gln Glu Met Val Ser Tyr Met
            195   200   205

Pro Asp Leu Asp Ser Leu Tyr Leu His Gly Asn Pro Trp Thr Cys Asp
    210   215   220

Cys His Leu Lys Trp Leu Ser Asp Trp Ile Gln Pro Asp Val Ile Lys
225   230   235   240

Cys Lys Lys Asp Arg Ser Pro Ser Ser Ala Gln Gln Cys Pro Leu Cys
            245   250   255

Met Asn Pro Arg Thr Ser Lys Gly Lys Pro Leu Ala Met Val Ser Ala

75

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                  260                    265                    270

Ala Ala Phe Gln Cys Ala Lys Pro Thr Ile Asp Ser Ser Leu Lys Ser
        275                280                285

Lys Ser Leu Thr Ile Leu Glu Asp Ser Ser Ser Ala Phe Ile Ser Pro
    290                295                300

Gln Gly Phe Met Ala Pro Phe Gly Ser Leu Thr Leu Asn Met Thr Asp
305                310                315                320

Gln Ser Gly Asn Glu Ala Asn Met Val Cys Ser Ile Gln Lys Pro Ser
            325                330                335

Arg Thr Ser Pro Ile Ala Phe Thr Glu Glu Asn Asp Tyr Ile Val Leu
            340                345                350

Asn Thr Ser Phe Ser Thr Phe Leu Val Cys Asn Ile Asp Tyr Gly His
            355                360                365

Ile Gln Pro Val Trp Gln Ile Leu Ala Leu Tyr Ser Asp Ser Pro Leu
    370                375                380

Ile Leu Glu Arg Ser His Leu Leu Ser Glu Thr Pro Gln Leu Tyr Tyr
385                390                395                400

Lys Tyr Lys Gln Val Ala Pro Lys Pro Glu Asp Ile Phe Thr Asn Ile
            405                410                415

Glu Ala Asp Leu Arg Ala Asp Pro Ser Trp Leu Met Gln Asp Gln Ile
            420                425                430

Ser Leu Gln Leu Asn Arg Thr Ala Thr Thr Phe Ser Thr Leu Gln Ile
            435                440                445

Gln Tyr Ser Ser Asp Ala Gln Ile Thr Leu Pro Arg Ala Glu Met Arg
    450                455                460

Pro Val Lys His Lys Trp Thr Met Ile Ser Arg Asp Asn Asn Thr Lys
465                470                475                480

Leu Glu His Thr Val Leu Val Gly Gly Thr Val Gly Leu Asn Cys Pro
            485                490                495

Gly Gln Gly Asp Pro Thr Pro His Val Asp Trp Leu Leu Ala Asp Gly
            500                505                510

Ser Lys Val Arg Ala Pro Tyr Val Ser Glu Asp Gly Arg Ile Leu Ile
            515                520                525

Asp Lys Ser Gly Lys Leu Glu Leu Gln Met Ala Asp Ser Phe Asp Thr
    530                535                540

Gly Val Tyr His Cys Ile Ser Ser Asn Tyr Asp Asp Ala Asp Ile Leu
545                550                555                560

Thr Tyr Arg Ile Thr Val Val Glu Pro Leu Val Glu Ala Tyr Gln Glu
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Asn Gly Ile His His Thr Val Phe Ile Gly Glu Thr Leu Asp Leu Pro
            580   585   590

Cys His Ser Thr Gly Ile Pro Asp Ala Ser Ile Ser Trp Val Ile Pro
            595   600   605

Gly Asn Asn Val Leu Tyr Gln Ser Ser Arg Asp Lys Lys Val Leu Asn
    610   615   620

Asn Gly Thr Leu Arg Ile Leu Gln Val Thr Pro Lys Asp Gln Gly Tyr
625   630   635   640

Tyr Arg Cys Val Ala Ala Asn Pro Ser Gly Val Asp Phe Leu Ile Phe
            645   650   655

Gln Val Ser Val Lys Met Lys Gly Gln Arg Pro Leu Glu His Asp Gly
            660   665   670

Glu Thr Glu Gly Ser Gly Leu Asp Glu Ser Asn Pro Ile Ala His Leu
            675   680   685

Lys Glu Pro Pro Gly Ala Gln Leu Arg Thr Ser Ala Leu Met Glu Ala
            690   695   700

Glu Val Gly Lys His Thr Ser Ser Thr Ser Lys Arg His Asn Tyr Arg
705   710   715   720

Glu Leu Thr Leu Gln Arg Arg Gly Asp Ser Thr His Arg Arg Phe Arg
            725   730   735

Glu Asn Arg Arg His Phe Pro Pro Ser Ala Arg Arg Ile Asp Pro Gln
            740   745   750

His Trp Ala Ala Leu Leu Glu Lys Ala Lys Lys Asn Ala Met Pro Asp
            755   760   765

Lys Arg Glu Asn Thr Thr Val Ser Pro Pro Val Val Thr Gln Leu
    770   775   780

Pro Asn Ile Pro Gly Glu Glu Asp Asp Ser Ser Gly Met Leu Ala Leu
785   790   795   800

His Glu Glu Phe Met Val Pro Ala Thr Lys Ala Leu Asn Leu Pro Ala
            805   810   815

Arg Thr Val Thr Ala Asp Ser Arg Thr Ile Ser Asp Ser Pro Met Thr
            820   825   830

Asn Ile Asn Tyr Gly Thr Glu Phe Ser Pro Val Val Asn Ser Gln Ile
            835   840   845

Leu Pro Pro Glu Glu Pro Thr Asp Phe Lys Leu Ser Thr Ala Ile Lys
    850   855   860

Thr Thr Ala Met Ser Lys Asn Ile Asn Pro Thr Met Ser Ser Gln Ile

Gln Gly Thr Thr Asn Gln His Ser Ser Thr Val Phe Pro Leu Leu Leu
            885   890   895

Gly Ala Thr Glu Phe Gln Asp Ser Asp Gln Met Gly Arg Gly Arg Glu
            900   905   910

His Phe Gln Ser Arg Pro Pro Ile Thr Val Arg Thr Met Ile Lys Asp
        915   920   925

Val Asn Val Lys Met Leu Ser Ser Thr Thr Asn Lys Leu Leu Leu Glu
    930   935   940

Ser Val Asn Thr Thr Asn Ser His Gln Thr Ser Val Arg Glu Val Ser
945   950   955   960

Glu Pro Arg His Asn His Phe Tyr Ser His Thr Thr Gln Ile Leu Ser
            965   970   975

Thr Ser Thr Phe Pro Ser Asp Pro His Thr Ala Ala His Ser Gln Phe
            980   985   990

Pro Ile Pro Arg Asn Ser Thr Val Asn Ile Pro Leu Phe Arg Arg Phe
        995   1000   1005

Gly Arg Gln Arg Lys Ile Gly Gly Arg Gly Arg Ile Ile Ser Pro
    1010   1015   1020

Tyr Arg Thr Pro Val Leu Arg Arg His Arg Tyr Ser Ile Phe Arg
    1025   1030   1035

Ser Thr Thr Arg Gly Ser Ser Glu Lys Ser Thr Thr Ala Phe Ser
    1040   1045   1050

Ala Thr Val Leu Asn Val Thr Cys Leu Ser Cys Leu Pro Arg Glu
    1055   1060   1065

Arg Leu Thr Thr Ala Thr Ala Ala Leu Ser Phe Pro Ser Ala Ala
    1070   1075   1080

Pro Ile Thr Phe Pro Lys Ala Asp Ile Ala Arg Val Pro Ser Glu
    1085   1090   1095

Glu Ser Thr Thr Leu Val Gln Asn Pro Leu Leu Leu Leu Glu Asn
    1100   1105   1110

Lys Pro Ser Val Glu Lys Thr Thr Pro Thr Ile Lys Tyr Phe Arg
    1115   1120   1125

Thr Glu Ile Ser Gln Val Thr Pro Thr Gly Ala Val Met Thr Tyr
    1130   1135   1140

Ala Pro Thr Ser Ile Pro Met Glu Lys Thr His Lys Val Asn Ala
    1145   1150   1155

Ser Tyr Pro Arg Val Ser Ser Thr Asn Glu Ala Lys Arg Asp Ser

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        1160                    1165                    1170
    Val Ile  Thr Ser Ser Leu Ser  Gly Ala Ile Thr Lys  Pro Pro Met
         1175                1180                1185

    Thr Ile  Ile Ala Ile Thr Arg  Phe Ser Arg Arg Lys  Ile Pro Trp
         1190                1195                1200

    Gln Gln  Asn Phe Val Asn Asn  His Asn Pro Lys Gly  Arg Leu Arg
         1205                1210                1215

    Asn Gln  His Lys Val Ser Leu  Gln Lys Ser Thr Ala  Val Met Leu
         1220                1225                1230

    Pro Lys  Thr Ser Pro Ala Leu  Pro Gln Arg Gln Ser  Ser Pro Phe
         1235                1240                1245

    His Phe  Thr Thr Leu Ser Thr  Ser Val Met Gln Ile  Pro Ser Asn
         1250                1255                1260

    Thr Leu  Thr Thr Ala His His  Thr Thr Thr Lys Thr  His Asn Pro
         1265                1270                1275

    Gly Ser  Leu Pro Thr Lys Lys  Glu Leu Pro Phe Pro  Pro Leu Asn
         1280                1285                1290

    Pro Met  Leu Pro Ser Ile Ile  Ser Lys Asp Ser Ser  Thr Lys Ser
         1295                1300                1305

    Ile Ile  Ser Thr Gln Thr Ala  Ile Pro Ala Thr Thr  Pro Thr Phe
         1310                1315                1320

    Pro Ala  Ser Val Ile Thr Tyr  Glu Thr Gln Thr Glu  Arg Ser Arg
         1325                1330                1335

    Ala Gln  Thr Ile Gln Arg Glu  Gln Glu Pro Gln Lys  Lys Asn Arg
         1340                1345                1350

    Thr Asp  Pro Asn Ile Ser Pro  Asp Gln Ser Ser Gly  Phe Thr Thr
         1355                1360                1365

    Pro Thr  Ala Met Thr Pro Pro  Ala Leu Ala Phe Thr  His Ser Pro
         1370                1375                1380

    Pro Glu  Asn Thr Thr Gly Ile  Ser Ser Thr Ile Ser  Phe His Ser
         1385                1390                1395

    Arg Thr  Leu Asn Leu Thr Asp  Val Ile Glu Glu Leu  Ala Gln Ala
         1400                1405                1410

    Ser Thr  Gln Thr Leu Lys Ser  Thr Ile Ala Ser Glu  Thr Thr Leu
         1415                1420                1425

    Ser Ser  Lys Ser His Gln Ser  Thr Thr Thr Arg Lys  Ala Ser Leu
         1430                1435                1440

    Asp Thr  Pro Ile Pro Pro Phe  Leu Ser Ser Ser Ala  Thr Leu Met
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        1445                    1450                    1455

     Pro Val  Pro Ile Ser Pro Pro  Phe Thr Gln Arg Ala  Val Thr Asp
         1460                1465                1470

     Thr Arg  Gly Asp Ser His Phe  Arg Leu Met Thr Asn  Thr Val Val
         1475                1480                1485

     Lys Leu  His Glu Ser Ser Arg  His Asn Leu Gln Met  Pro Ser Ser
         1490                1495                1500

     Gln Leu  Glu Pro Leu Thr Ser  Ser Thr Ser Asn Leu  Leu His Ser
         1505                1510                1515

     Thr Pro  Met Pro Ala Leu Thr  Thr Val Lys Ser Gln  Asn Ser Lys
         1520                1525                1530

     Leu Thr  Pro Ser Pro Trp Ala  Glu Tyr Gln Phe Trp  His Lys Pro
         1535                1540                1545

     Tyr Ser  Asp Ile Ala Glu Lys  Gly Lys Lys Pro Glu  Val Ser Met
         1550                1555                1560

     Leu Ala  Thr Thr Gly Leu Ser  Glu Ala Thr Thr Leu  Val Ser Asp
         1565                1570                1575

     Trp Asp  Gly Gln Lys Asn Thr  Lys Lys Ser Asp Phe  Asp Lys Lys
         1580                1585                1590

     Pro Val  Gln Glu Ala Thr Thr  Ser Lys Leu Leu Pro  Phe Asp Ser
         1595                1600                1605

     Leu Ser  Arg Tyr Ile Phe Glu  Lys Pro Arg Ile Val  Gly Gly Lys
         1610                1615                1620

     Ala Ala  Ser Phe Thr Ile Pro  Ala Asn Ser Asp Ala  Phe Leu Pro
         1625                1630                1635

     Cys Glu  Ala Val Gly Asn Pro  Leu Pro Thr Ile His  Trp Thr Arg
         1640                1645                1650

     Val Ser  Gly Leu Asp Leu Ser  Arg Gly Asn Gln Asn  Ser Arg Val
         1655                1660                1665

     Gln Val  Leu Pro Asn Gly Thr  Leu Ser Ile Gln Arg  Val Glu Ile
         1670                1675                1680

     Gln Asp  Arg Gly Gln Tyr Leu  Cys Ser Ala Ser Asn  Leu Phe Gly
         1685                1690                1695

     Thr Asp  His Leu His Val Thr  Leu Ser Val Val Ser  Tyr Pro Pro
         1700                1705                1710

     Arg Ile  Leu Glu Arg Arg Thr  Lys Glu Ile Thr Val  His Ser Gly
         1715                1720                1725

     Ser Thr  Val Glu Leu Lys Cys  Arg Ala Glu Gly Arg  Pro Ser Pro
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.80

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         1730                      1735                      1740
Thr Val  Thr Trp Ile Leu Ala  Asn Gln Thr Val Val  Ser Glu Ser
         1745                      1750                      1755

Ser Gln  Gly Ser Arg Gln Ala  Val Val Thr Val Asp  Gly Thr Leu
         1760                      1765                      1770

Val Leu  His Asn Leu Ser Ile  Tyr Asp Arg Gly Phe  Tyr Lys Cys
         1775                      1780                      1785

Val Ala  Ser Asn Pro Gly Gly  Gln Asp Ser Leu Leu  Val Lys Ile
         1790                      1795                      1800

Gln Val  Ile Ala Ala Pro Pro  Val Ile Leu Glu Gln  Arg Arg Gln
         1805                      1810                      1815

Val Ile  Val Gly Thr Trp Gly  Glu Ser Leu Lys Leu  Pro Cys Thr
         1820                      1825                      1830

Ala Lys  Gly Thr Pro Gln Pro  Ser Val Tyr Trp Val  Leu Ser Asp
         1835                      1840                      1845

Gly Thr  Glu Val Lys Pro Leu  Gln Phe Thr Asn Ser  Lys Leu Phe
         1850                      1855                      1860

Leu Phe  Ser Asn Gly Thr Leu  Tyr Ile Arg Asn Leu  Ala Ser Ser
         1865                      1870                      1875

Asp Arg  Gly Thr Tyr Glu Cys  Ile Ala Thr Ser Ser  Thr Gly Ser
         1880                      1885                      1890

Glu Arg  Arg Val Val Met Leu  Thr Met Glu Glu Arg  Val Thr Ser
         1895                      1900                      1905

Pro Arg  Ile Glu Ala Ala Ser  Gln Lys Arg Thr Glu  Val Asn Phe
         1910                      1915                      1920

Gly Asp  Lys Leu Leu Leu Asn  Cys Ser Ala Thr Gly  Glu Pro Lys
         1925                      1930                      1935

Pro Gln  Ile Met Trp Arg Leu  Pro Ser Lys Ala Val  Val Asp Gln
         1940                      1945                      1950

Gly Ser  Trp Ile His Val Tyr  Pro Asn Gly Ser Leu  Phe Ile Gly
         1955                      1960                      1965

Ser Val  Thr Glu Lys Asp Ser  Gly Val Tyr Leu Cys  Val Ala Arg
         1970                      1975                      1980

Asn Lys  Met Gly Asp Asp Leu  Ile Leu Met His Val  Ser Leu Arg
         1985                      1990                      1995

Leu Lys  Pro Ala Lys Ile Asp  His Lys Gln Tyr Phe  Arg Lys Gln
         2000                      2005                      2010

Val Leu  His Gly Lys Asp Phe  Gln Val Asp Cys Lys  Ala Ser Gly
```

81

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        2015                    2020                    2025

Ser Pro  Val Pro Glu Ile Ser  Trp Ser Leu Pro Asp  Gly Thr Met
    2030                 2035                 2040

Ile Asn  Asn Ala Met Gln Ala  Asp Asp Ser Gly His  Arg Thr Arg
    2045                 2050                 2055

Arg Tyr  Thr Leu Phe Asn Asn  Gly Thr Leu Tyr Phe  Asn Lys Val
    2060                 2065                 2070

Gly Val  Ala Glu Glu Gly Asp  Tyr Thr Cys Tyr Ala  Gln Asn Thr
    2075                 2080                 2085

Leu Gly  Lys Asp Glu Met Lys  Val His Leu Thr Val  Ile Thr Ala
    2090                 2095                 2100

Ala Pro  Arg Ile Arg Gln Ser  Asn Lys Thr Asn Lys  Arg Ile Lys
    2105                 2110                 2115

Ala Gly  Asp Thr Ala Val Leu  Asp Cys Glu Val Thr  Gly Asp Pro
    2120                 2125                 2130

Lys Pro  Lys Ile Phe Trp Leu  Leu Pro Ser Asn Asp  Met Ile Ser
    2135                 2140                 2145

Phe Ser  Ile Asp Arg Tyr Thr  Phe His Ala Asn Gly  Ser Leu Thr
    2150                 2155                 2160

Ile Asn  Lys Val Lys Leu Leu  Asp Ser Gly Glu Tyr  Val Cys Val
    2165                 2170                 2175

Ala Arg  Asn Pro Ser Gly Asp  Asp Thr Lys Met Tyr  Lys Leu Asp
    2180                 2185                 2190

Val Val  Ser Lys Pro Pro Leu  Ile Asn Gly Leu Tyr  Thr Asn Arg
    2195                 2200                 2205

Thr Val  Ile Lys Ala Thr Ala  Val Arg His Ser Lys  Lys His Phe
    2210                 2215                 2220

Asp Cys  Arg Ala Glu Gly Thr  Pro Ser Pro Glu Val  Met Trp Ile
    2225                 2230                 2235

Met Pro  Asp Asn Ile Phe Leu  Thr Ala Pro Tyr Tyr  Gly Ser Arg
    2240                 2245                 2250

Ile Thr  Val His Lys Asn Gly  Thr Leu Glu Ile Arg  Asn Val Arg
    2255                 2260                 2265

Leu Ser  Asp Ser Ala Asp Phe  Ile Cys Val Ala Arg  Asn Glu Gly
    2270                 2275                 2280

Gly Glu  Ser Val Leu Val Val  Gln Leu Glu Val Leu  Glu Met Leu
    2285                 2290                 2295

Arg Arg  Pro Thr Phe Arg Asn  Pro Phe Asn Glu Lys  Ile Val Ala
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              2300                      2305                      2310
    Gln Leu  Gly Lys Ser Thr Ala  Leu Asn Cys Ser Val  Asp Gly Asn
         2315                 2320                 2325

    Pro Pro  Pro Glu Ile Ile Trp  Ile Leu Pro Asn Gly  Thr Arg Phe
         2330                 2335                 2340

    Ser Asn  Gly Pro Gln Ser Tyr  Gln Tyr Leu Ile Ala  Ser Asn Gly
         2345                 2350                 2355

    Ser Phe  Ile Ile Ser Lys Thr  Thr Arg Glu Asp Ala  Gly Lys Tyr
         2360                 2365                 2370

    Arg Cys  Ala Ala Arg Asn Lys  Val Gly Tyr Ile Glu  Lys Leu Val
         2375                 2380                 2385

    Ile Leu  Glu Ile Gly Gln Lys  Pro Val Ile Leu Thr  Tyr Ala Pro
         2390                 2395                 2400

    Gly Thr  Val Lys Gly Ile Ser  Gly Glu Ser Leu Ser  Leu His Cys
         2405                 2410                 2415

    Val Ser  Asp Gly Ile Pro Lys  Pro Asn Ile Lys Trp  Thr Met Pro
         2420                 2425                 2430

    Ser Gly  Tyr Val Val Asp Arg  Pro Gln Ile Asn Gly  Lys Tyr Ile
         2435                 2440                 2445

    Leu His  Asp Asn Gly Thr Leu  Val Ile Lys Glu Ala  Thr Ala Tyr
         2450                 2455                 2460

    Asp Arg  Gly Asn Tyr Ile Cys  Lys Ala Gln Asn Ser  Val Gly His
         2465                 2470                 2475

    Thr Leu  Ile Thr Val Pro Val  Met Ile Val Ala Tyr  Pro Pro Arg
         2480                 2485                 2490

    Ile Thr  Asn Arg Pro Pro Arg  Ser Ile Val Thr Arg  Thr Gly Ala
         2495                 2500                 2505

    Ala Phe  Gln Leu His Cys Val  Ala Leu Gly Val Pro  Lys Pro Glu
         2510                 2515                 2520

    Ile Thr  Trp Glu Met Pro Asp  His Ser Leu Leu Ser  Thr Ala Ser
         2525                 2530                 2535

    Lys Glu  Arg Thr His Gly Ser  Glu Gln Leu His Leu  Gln Gly Thr
         2540                 2545                 2550

    Leu Val  Ile Gln Asn Pro Gln  Thr Ser Asp Ser Gly  Ile Tyr Lys
         2555                 2560                 2565

    Cys Thr  Ala Lys Asn Pro Leu  Gly Ser Asp Tyr Ala  Ala Thr Tyr
         2570                 2575                 2580

    Ile Gln  Val
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Met Gln Lys Arg Gly Arg Glu Val Ser Cys Leu Leu Ile Ser Leu Thr
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Ala Ile Cys Leu Val Val Thr Pro Gly Ser Arg Val Cys Pro Arg Arg
            20   25   30

Cys Ala Cys Tyr Val Pro Thr Glu Val His Cys Thr Phe Arg Asp Leu
            35   40   45

Thr Ser Ile Pro Asp Gly Pro Ala Asn Val Glu Arg Val Asn Leu Gly
        50   55   60

Tyr Asn Ser Leu Thr Arg Leu Thr Glu Asn Asp Phe Ser Gly Leu Ser
65   70   75   80

Arg Leu Glu Leu Leu Met Leu His Ser Asn Gly Ile His Arg Val Ser
            85   90   95

Asp Lys Thr Phe Ser Gly Leu Gln Ser Leu Gln Val Leu Lys Met Ser
            100   105   110

Tyr Asn Lys Val Gln Ile Ile Glu Lys Asp Thr Leu Tyr Gly Leu Arg
            115   120   125

Ser Leu Thr Arg Leu His Leu Asp His Asn Asn Ile Glu Phe Ile Asn
    130   135   140

Pro Glu Ala Phe Tyr Gly Leu Thr Leu Leu Arg Leu Val His Leu Glu
145   150   155   160

Gly Asn Arg Leu Thr Lys Leu His Pro Asp Thr Phe Val Ser Leu Ser
            165   170   175

Tyr Leu Gln Ile Phe Lys Thr Ser Phe Ile Lys Xaa Leu Tyr Leu Tyr
            180   185   190

Asp Asn Phe Thr Ser Leu Pro Lys Glu Met Val Ser Ser Met Pro Asn
            195   200   205

Leu Glu Ser Leu Tyr Leu His Gly Asn Pro Trp Thr Cys Asp Cys His
    210   215   220

Leu Lys Trp Leu Ser Glu Trp Met Gln Gly Asn Pro
225   230   235

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Met Lys Val Lys Gly Arg Gly Ile Thr Cys Leu Leu Val Ser Phe Ala
1   5   10   15

Val Ile Cys Leu Val Ala Thr Pro Gly Gly Lys Ala Cys Pro Arg Arg
            20   25   30

Cys Ala Cys Tyr Met Pro Thr Glu Val His Cys Thr Phe Arg Tyr Leu
            35   40   45

Thr Ser Ile Pro Asp Ser Ile Pro Pro Asn Val Glu Arg Ile Asn Leu
        50   55   60

Gly Tyr Asn Ser Leu Val Arg Leu Met Glu Thr Asp Phe Ser Gly Leu
65   70   75   80

Thr Lys Leu Glu Leu Leu Met Leu His Ser Asn Gly Ile His Thr Ile
            85   90   95

Pro Asp Lys Thr Phe Ser Asp Leu Gln Ala Leu Gln Val Leu Lys Met
            100   105   110

Ser Tyr Asn Lys Val Arg Lys Leu Gln Lys Asp Thr Phe Tyr Gly Leu
        115   120   125

Arg Ser Leu Thr Arg Leu His Met Asp His Asn Asn Ile Glu Phe Ile
    130   135   140

Asn Pro Glu Val Phe Tyr Gly Leu Asn Phe Leu Arg Leu Val His Leu
145   150   155   160

Glu Gly Asn Gln Leu Thr Lys Leu His Pro Asp Thr Phe Val Ser Leu
            165   170   175

Ser Tyr Leu Gln Ile Phe Lys Ile Ser Phe Ile Lys Phe Leu Tyr Leu
            180   185   190

Ser Asp Asn Phe Leu Thr Ser Leu Pro Gln Glu Met Val Ser Tyr Met
        195   200   205

Pro Asp Leu Asp Ser Leu Tyr Leu His Gly Asn Pro Trp Thr Cys Asp
    210   215   220

Cys His Leu Lys Trp Leu Ser Asp Trp Ile Gln Pro Asp Val Ile Lys
225   230   235   240

Cys Lys Lys Asp Arg Ser Pro Ser Ser Ala Gln Gln Cys Pro Leu Cys
            245   250   255

85

```
Met Asn Pro Arg Thr Ser Lys Gly Lys Pro Leu Ala Met Val Ser Ala
        260               265               270

Ala Ala Phe Gln Cys Ala Lys Pro Thr Ile Asp Ser Ser Leu Lys Ser
        275               280               285

Lys Ser Leu Thr Ile Leu Glu Asp Ser Ser Ser Ala Phe Ile Ser Pro
    290               295               300

Gln Gly Phe Met Ala Pro Phe Gly Ser Leu Thr Leu Asn Met Thr Asp
305               310               315               320

Gln Ser Gly Asn Glu Ala Asn Met Val Cys Ser Ile Gln Lys Pro Ser
            325               330               335

Arg Thr Ser Pro Ile Ala Phe Thr Glu Glu Asn Asp Tyr Ile Val Leu
        340               345               350

Asn Thr Ser Phe Ser Thr Phe Leu Val Cys Asn Ile Asp Tyr Gly His
        355               360               365

Ile Gln Pro Val Trp Gln Ile Leu Ala Leu Tyr Ser Asp Ser Pro Leu
    370               375               380

Ile Leu Glu Arg Ser His Leu Leu Ser Glu Thr Pro Gln Leu Tyr Tyr
385               390               395               400

Lys Tyr Lys Gln Val Ala Pro Lys Pro Glu Asp Ile Phe Thr Asn Ile
            405               410               415

Glu Ala Asp Leu Arg Ala Asp Pro Ser Trp Leu Met Gln Asp Gln Ile
        420               425               430

Ser Leu Gln Leu Asn Arg Thr Ala Thr Thr Phe Ser Thr Leu Gln Ile
        435               440               445

Gln Tyr Ser Ser Asp Ala Gln Ile Thr Leu Pro Arg Ala Glu Met Arg
    450               455               460

Pro Val Lys His Lys Trp Thr Met Ile Ser Arg Asp Asn Asn Thr Lys
465               470               475               480

Leu Glu His Thr Val Leu Val Gly Gly Thr Val Gly Leu Asn Cys Pro
            485               490               495

Gly Gln Gly Asp Pro Thr Pro His Val Asp Trp Leu Leu Ala Asp Gly
            500               505               510

Ser Lys Val Arg Ala Pro Tyr Val Ser Glu Asp Gly Arg Ile Leu Ile
        515               520               525

Asp Lys Ser Gly Lys Leu Glu Leu Gln Met Ala Asp Ser Phe Asp Thr
    530               535               540

Gly Val Tyr His Cys Ile Ser Ser Asn Tyr Asp Asp Ala Asp Ile Leu
545               550               555               560
```

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Thr Tyr Arg Ile Thr Val Val Glu Pro Leu Val Glu Ala Tyr Gln Glu
            565             570             575

Asn Gly Ile His His Thr Val Phe Ile Gly Glu Thr Leu Asp Leu Pro
            580             585             590

Cys His Ser Thr Gly Ile Pro Asp Ala Ser Ile Ser Trp Val Ile Pro
            595             600             605

Gly Asn Asn Val Leu Tyr Gln Ser Ser Arg Asp Lys Lys Val Leu Asn
    610             615             620

Asn Gly Thr Leu Arg Ile Leu Gln Val Thr Pro Lys Asp Gln Gly Tyr
625             630             635             640

Tyr Arg Cys Val Ala Ala Asn Pro Ser Gly Val Asp Phe Leu Ile Phe
            645             650             655

Gln Val Ser Val Lys Met Lys Gly Gln Arg Pro Leu Glu His Asp Gly
            660             665             670

Glu Thr Glu Gly Ser Gly Leu Asp Glu Ser Asn Pro Ile Ala His Leu
            675             680             685

Lys Glu Pro Pro Gly Ala Gln Leu Arg Thr Ser Ala Leu Met Glu Ala
    690             695             700

Glu Val Gly Lys His Thr Ser Ser Thr Ser Lys Arg His Asn Tyr Arg
705             710             715             720

Glu Leu Thr Leu Gln Arg Arg Gly Asp Ser Thr His Arg Arg Phe Arg
            725             730             735

Glu Asn Arg Arg His Phe Pro Pro Ser Ala Arg Arg Ile Asp Pro Gln
            740             745             750

His Trp Ala Ala Leu Leu Glu Lys Ala Lys Lys Asn Ala Met Pro Asp
            755             760             765

Lys Arg Glu Asn Thr Thr Val Ser Pro Pro Val Val Thr Gln Leu
    770             775             780

Pro Asn Ile Pro Gly Glu Glu Asp Asp Ser Ser Gly Met Leu Ala Leu
785             790             795             800

His Glu Glu Phe Met Val Pro Ala Thr Lys Ala Leu Asn Leu Pro Ala
            805             810             815

Arg Thr Val Thr Ala Asp Ser Arg Thr Ile Ser Asp Ser Pro Met Thr
            820             825             830

Asn Ile Asn Tyr Gly Thr Glu Phe Ser Pro Val Val Asn Ser Gln Ile
            835             840             845

Leu Pro Pro Glu Glu Pro Thr Asp Phe Lys Leu Ser Thr Ala Ile Lys
    850             855             860
```

```
Thr Thr Ala Met Ser Lys Asn Ile Asn Pro Thr Met Ser Ser Gln Ile
865             870             875                 880

Gln Gly Thr Thr Asn Gln His Ser Ser Thr Val Phe Pro Leu Leu Leu
            885             890                 895

Gly Ala Thr Glu Phe Gln Asp Ser Asp Gln Met Gly Arg Gly Arg Glu
            900             905             910

His Phe Gln Ser Arg Pro Pro Ile Thr Val Arg Thr Met Ile Lys Asp
        915             920             925

Val Asn Val Lys Met Leu Ser Ser Thr Thr Asn Lys Leu Leu Leu Glu
    930             935             940

Ser Val Asn Thr Thr Asn Ser His Gln Thr Ser Val Arg Glu Val Ser
945             950             955                 960

Glu Pro Arg His Asn His Phe Tyr Ser His Thr Thr Gln Ile Leu Ser
            965             970                 975

Thr Ser Thr Phe Pro Ser Asp Pro His Thr Ala Ala His Ser Gln Phe
            980             985                 990

Pro Ile Pro Arg Asn Ser Thr Val  Asn Ile Pro Leu Phe  Arg Arg Phe
        995             1000            1005

Gly Arg  Gln Arg Lys Ile Gly  Gly Arg Gly Arg Ile  Ile Ser Pro
    1010            1015            1020

Tyr Arg  Thr Pro Val Leu Arg  Arg His Arg Tyr Ser  Ile Phe Arg
    1025            1030            1035

Ser Thr  Thr Arg Gly Ser Ser  Glu Lys Ser Thr Thr  Ala Phe Ser
    1040            1045            1050

Ala Thr  Val Leu Asn Val Thr  Cys Leu Ser Cys Leu  Pro Arg Glu
    1055            1060            1065

Arg Leu  Thr Thr Ala Thr Ala  Ala Leu Ser Phe Pro  Ser Ala Ala
    1070            1075            1080

Pro Ile  Thr Phe Pro Lys Ala  Asp Ile Ala Arg Val  Pro Ser Glu
    1085            1090            1095

Glu Ser  Thr Thr Leu Val Gln  Asn Pro Leu Leu Leu  Leu Glu Asn
    1100            1105            1110

Lys Pro  Ser Val Glu Lys Thr  Thr Pro Thr Ile Lys  Tyr Phe Arg
    1115            1120            1125

Thr Glu  Ile Ser Gln Val Thr  Pro Thr Gly Ala Val  Met Thr Tyr
    1130            1135            1140

Ala Pro  Thr Ser Ile Pro Met  Glu Lys Thr His Lys  Val Asn Ala
    1145            1150            1155
```

88

```
Ser Tyr  Pro Arg Val Ser Ser  Thr Asn Glu Ala Lys  Arg Asp Ser
    1160                1165             1170

Val Ile  Thr Ser Ser Leu Ser  Gly Ala Ile Thr Lys  Pro Pro Met
    1175                1180             1185

Thr Ile  Ile Ala Ile Thr Arg  Phe Ser Arg Arg Lys  Ile Pro Trp
    1190                1195             1200

Gln Gln  Asn Phe Val Asn Asn  His Asn Pro Lys Gly  Arg Leu Arg
    1205                1210             1215

Asn Gln  His Lys Val Ser Leu  Gln Lys Ser Thr Ala  Val Met Leu
    1220                1225             1230

Pro Lys  Thr Ser Pro Ala Leu  Pro Gln Arg Gln Ser  Ser Pro Phe
    1235                1240             1245

His Phe  Thr Thr Leu Ser Thr  Ser Val Met Gln Ile  Pro Ser Asn
    1250                1255             1260

Thr Leu  Thr Thr Ala His His  Thr Thr Thr Lys Thr  His Asn Pro
    1265                1270             1275

Gly Ser  Leu Pro Thr Lys Lys  Glu Leu Pro Phe Pro  Pro Leu Asn
    1280                1285             1290

Pro Met  Leu Pro Ser Ile Ile  Ser Lys Asp Ser Ser  Thr Lys Ser
    1295                1300             1305

Ile Ile  Ser Thr Gln Thr Ala  Ile Pro Ala Thr Thr  Pro Thr Phe
    1310                1315             1320

Pro Ala  Ser Val Ile Thr Tyr  Glu Thr Gln Thr Glu  Arg Ser Arg
    1325                1330             1335

Ala Gln  Thr Ile Gln Arg Glu  Gln Glu Pro Gln Lys  Lys Asn Arg
    1340                1345             1350

Thr Asp  Pro Asn Ile Ser Pro  Asp Gln Ser Ser Gly  Phe Thr Thr
    1355                1360             1365

Pro Thr  Ala Met Thr Pro Pro  Ala Leu Ala Phe Thr  His Ser Pro
    1370                1375             1380

Pro Glu  Asn Thr Thr Gly Ile  Ser Ser Thr Ile Ser  Phe His Ser
    1385                1390             1395

Arg Thr  Leu Asn Leu Thr Asp  Val Ile Glu Glu Leu  Ala Gln Ala
    1400                1405             1410

Ser Thr  Gln Thr Leu Lys Ser  Thr Ile Ala Ser Glu  Thr Thr Leu
    1415                1420             1425

Ser Ser  Lys Ser His Gln Ser  Thr Thr Thr Arg Lys  Ala Ser Leu
    1430                1435             1440
```

89

Asp Thr   Pro Ile Pro Pro Phe   Leu Ser Ser Ser Ala   Thr Leu Met
    1445   1450   1455

Pro Val   Pro Ile Ser Pro Pro   Phe Thr Gln Arg Ala   Val Thr Asp
    1460   1465   1470

Thr Arg   Gly Asp Ser His Phe   Arg Leu Met Thr Asn   Thr Val Val
    1475   1480   1485

Lys Leu   His Glu Ser Ser Arg   His Asn Leu Gln Met   Pro Ser Ser
    1490   1495   1500

Gln Leu   Glu Pro Leu Thr Ser   Ser Thr Ser Asn Leu   Leu His Ser
    1505   1510   1515

Thr Pro   Met Pro Ala Leu Thr   Thr Val Lys Ser Gln   Asn Ser Lys
    1520   1525   1530

Leu Thr   Pro Ser Pro Trp Ala   Glu Tyr Gln Phe Trp   His Lys Pro
    1535   1540   1545

Tyr Ser   Asp Ile Ala Glu Lys   Gly Lys Lys Pro Glu   Val Ser Met
    1550   1555   1560

Leu Ala   Thr Thr Gly Leu Ser   Glu Ala Thr Thr Leu   Val Ser Asp
    1565   1570   1575

Trp Asp   Gly Gln Lys Asn Thr   Lys Lys Ser Asp Phe   Asp Lys Lys
    1580   1585   1590

Pro Val   Gln Glu Ala Thr Thr   Ser Lys Leu Leu Pro   Phe Asp Ser
    1595   1600   1605

Leu Ser   Arg Tyr Ile Phe Glu   Lys Pro Arg Ile Val   Gly Gly Lys
    1610   1615   1620

Ala Ala   Ser Phe Thr Ile Pro   Ala Asn Ser Asp Ala   Phe Leu Pro
    1625   1630   1635

Cys Glu   Ala Val Gly Asn Pro   Leu Pro Thr Ile His   Trp Thr Arg
    1640   1645   1650

Val Ser   Gly Leu Asp Leu Ser   Arg Gly Asn Gln Asn   Ser Arg Val
    1655   1660   1665

Gln Val   Leu Pro Asn Gly Thr   Leu Ser Ile Gln Arg   Val Glu Ile
    1670   1675   1680

Gln Asp   Arg Gly Gln Tyr Leu   Cys Ser Ala Ser Asn   Leu Phe Gly
    1685   1690   1695

Thr Asp   His Leu His Val Thr   Leu Ser Val Val Ser   Tyr Pro Pro
    1700   1705   1710

Arg Ile   Leu Glu Arg Arg Thr   Lys Glu Ile Thr Val   His Ser Gly
    1715   1720   1725

90

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Ser Thr  Val Glu Leu Lys Cys  Arg Ala Glu Gly Arg  Pro Ser Pro
    1730                1735            1740

Thr Val  Thr Trp Ile Leu Ala  Asn Gln Thr Val Val  Ser Glu Ser
    1745                1750            1755

Ser Gln  Gly Ser Arg Gln Ala  Val Val Thr Val Asp  Gly Thr Leu
    1760                1765            1770

Val Leu  His Asn Leu Ser Ile  Tyr Asp Arg Gly Phe  Tyr Lys Cys
    1775                1780            1785

Val Ala  Ser Asn Pro Gly Gly  Gln Asp Ser Leu Leu  Val Lys Ile
    1790                1795            1800

Gln Val  Ile Ala Ala Pro Pro  Val Ile Leu Glu Gln  Arg Arg Gln
    1805                1810            1815

Val Ile  Val Gly Thr Trp Gly  Glu Ser Leu Lys Leu  Pro Cys Thr
    1820                1825            1830

Ala Lys  Gly Thr Pro Gln Pro  Ser Val Tyr Trp Val  Leu Ser Asp
    1835                1840            1845

Gly Thr  Glu Val Lys Pro Leu  Gln Phe Thr Asn Ser  Lys Leu Phe
    1850                1855            1860

Leu Phe  Ser Asn Gly Thr Leu  Tyr Ile Arg Asn Leu  Ala Ser Ser
    1865                1870            1875

Asp Arg  Gly Thr Tyr Glu Cys  Ile Ala Thr Ser Ser  Thr Gly Ser
    1880                1885            1890

Glu Arg  Arg Val Val Met Leu  Thr Met Glu Glu Arg  Val Thr Ser
    1895                1900            1905

Pro Arg  Ile Glu Ala Ala Ser  Gln Lys Arg Thr Glu  Val Asn Phe
    1910                1915            1920

Gly Asp  Lys Leu Leu Leu Asn  Cys Ser Ala Thr Gly  Glu Pro Lys
    1925                1930            1935

Pro Gln  Ile Met Trp Arg Leu  Pro Ser Lys Ala Val  Val Asp Gln
    1940                1945            1950

Gly Ser  Trp Ile His Val Tyr  Pro Asn Gly Ser Leu  Phe Ile Gly
    1955                1960            1965

Ser Val  Thr Glu Lys Asp Ser  Gly Val Tyr Leu Cys  Val Ala Arg
    1970                1975            1980

Asn Lys  Met Gly Asp Asp Leu  Ile Leu Met His Val  Ser Leu Arg
    1985                1990            1995

Leu Lys  Pro Ala Lys Ile Asp  His Lys Gln Tyr Phe  Arg Lys Gln
    2000                2005            2010
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91

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Val Leu His Gly Lys Asp Phe  Gln Val Asp Cys Lys  Ala Ser Gly
    2015              2020              2025

Ser Pro Val Pro Glu Ile Ser  Trp Ser Leu Pro Asp  Gly Thr Met
    2030              2035              2040

Ile Asn Asn Ala Met Gln Ala  Asp Asp Ser Gly His  Arg Thr Arg
    2045              2050              2055

Arg Tyr Thr Leu Phe Asn Asn  Gly Thr Leu Tyr Phe  Asn Lys Val
    2060              2065              2070

Gly Val Ala Glu Glu Gly Asp  Tyr Thr Cys Tyr Ala  Gln Asn Thr
    2075              2080              2085

Leu Gly Lys Asp Glu Met Lys  Val His Leu Thr Val  Ile Thr Ala
    2090              2095              2100

Ala Pro Arg Ile Arg Gln Ser  Asn Lys Thr Asn Lys  Arg Ile Lys
    2105              2110              2115

Ala Gly Asp Thr Ala Val Leu  Asp Cys Glu Val Thr  Gly Asp Pro
    2120              2125              2130

Lys Pro Lys Ile Phe Trp Leu  Leu Pro Ser Asn Asp  Met Ile Ser
    2135              2140              2145

Phe Ser Ile Asp Arg Tyr Thr  Phe His Ala Asn Gly  Ser Leu Thr
    2150              2155              2160

Ile Asn Lys Val Lys Leu Leu  Asp Ser Gly Glu Tyr  Val Cys Val
    2165              2170              2175

Ala Arg Asn Pro Ser Gly Asp  Asp Thr Lys Met Tyr  Lys Leu Asp
    2180              2185              2190

Val Val Ser Lys Pro Pro Leu  Ile Asn Gly Leu Tyr  Thr Asn Arg
    2195              2200              2205

Thr Val Ile Lys Ala Thr Ala  Val Arg His Ser Lys  Lys His Phe
    2210              2215              2220

Asp Cys Arg Ala Glu Gly Thr  Pro Ser Pro Glu Val  Met Trp Ile
    2225              2230              2235

Met Pro Asp Asn Ile Phe Leu  Thr Ala Pro Tyr Tyr  Gly Ser Arg
    2240              2245              2250

Ile Thr Val His Lys Asn Gly  Thr Leu Glu Ile Arg  Asn Val Arg
    2255              2260              2265

Leu Ser Asp Ser Ala Asp Phe  Ile Cys Val Ala Arg  Asn Glu Gly
    2270              2275              2280

Gly Glu Ser Val Leu Val Val  Gln Leu Glu Val Leu  Glu Met Leu
    2285              2290              2295
```

92

Arg Arg Pro Thr Phe Arg Asn Pro Phe Asn Glu Lys Ile Val Ala
    2300   2305   2310

Gln Leu Gly Lys Ser Thr Ala Leu Asn Cys Ser Val Asp Gly Asn
    2315   2320   2325

Pro Pro Pro Glu Ile Ile Trp Ile Leu Pro Asn Gly Thr Arg Phe
    2330   2335   2340

Ser Asn Gly Pro Gln Ser Tyr Gln Tyr Leu Ile Ala Ser Asn Gly
    2345   2350   2355

Ser Phe Ile Ile Ser Lys Thr Thr Arg Glu Asp Ala Gly Lys Tyr
    2360   2365   2370

Arg Cys Ala Ala Arg Asn Lys Val Gly Tyr Ile Glu Lys Leu Val
    2375   2380   2385

Ile Leu Glu Ile Gly Gln Lys Pro Val Ile Leu Thr Tyr Ala Pro
    2390   2395   2400

Gly Thr Val Lys Gly Ile Ser Gly Glu Ser Leu Ser Leu His Cys
    2405   2410   2415

Val Ser Asp Gly Ile Pro Lys Pro Asn Ile Lys Trp Thr Met Pro
    2420   2425   2430

Ser Gly Tyr Val Val Asp Arg Pro Gln Ile Asn Gly Lys Tyr Ile
    2435   2440   2445

Leu His Asp Asn Gly Thr Leu Val Ile Lys Glu Ala Thr Ala Tyr
    2450   2455   2460

Asp Arg Gly Asn Tyr Ile Cys Lys Ala Gln Asn Ser Val Gly His
    2465   2470   2475

Thr Leu Ile Thr Val Pro Val Met Ile Val Ala Tyr Pro Pro Arg
    2480   2485   2490

Ile Thr Asn Arg Pro Pro Arg Ser Ile Val Thr Arg Thr Gly Ala
    2495   2500   2505

Ala Phe Gln Leu His Cys Val Ala Leu Gly Val Pro Lys Pro Glu
    2510   2515   2520

Ile Thr Trp Glu Met Pro Asp His Ser Leu Leu Ser Thr Ala Ser
    2525   2530   2535

Lys Glu Arg Thr His Gly Ser Glu Gln Leu His Leu Gln Gly Thr
    2540   2545   2550

Leu Val Ile Gln Asn Pro Gln Thr Ser Asp Ser Gly Ile Tyr Lys
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Cys Thr Ala Lys Asn Pro Leu Gly Ser Asp Tyr Ala Ala Thr Tyr
    2570   2575   2580

93

Ile Gln Val Ile
    2585

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94

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103

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104

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aattatggtg atattttgaa ggtttatgaa aatttgttta tgtgtataaa tgcacaagaa    7200

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105

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106

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107

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<212> PRT
<213> homo sapiens

<400> 21

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Leu Trp Gly His Pro Arg Val Ala Leu Ala Cys Pro His Pro Cys Ala
            20   25   30

Cys Tyr Val Pro Ser Glu Val His Cys Thr Phe Arg Ser Leu Ala Ser
        35   40   45

Val Pro Ala Gly Ile Ala Arg His Val Glu Arg Ile Asn Leu Gly Phe
    50   55   60

Asn Ser Ile Gln Ala Leu Ser Glu Thr Ser Phe Ala Gly Leu Thr Lys
65   70   75   80

Leu Glu Leu Leu Met Ile His Gly Asn Glu Ile Pro Ser Ile Pro Asp
                85   90   95

Gly Ala Leu Arg Asp Leu Ser Ser Leu Gln Val Phe Lys Phe Ser Tyr
            100   105   110

Asn Lys Leu Arg Val Ile Thr Gly Gln Thr Leu Gln Gly Leu Ser Asn
        115   120   125

Leu Met Arg Leu His Ile Asp His Asn Lys Ile Glu Phe Ile His Pro
    130   135   140

Gln Ala Phe Asn Gly Leu Thr Ser Leu Arg Leu Leu His Leu Glu Gly
145   150   155   160

Asn Leu Leu His Gln Leu His Pro Ser Thr Phe Ser Thr Phe Thr Phe
            165   170   175

Leu Asp Tyr Phe Arg Leu Ser Thr Ile Arg His Leu Tyr Leu Ala Glu
            180   185   190

Asn Met Val Arg Thr Leu Pro Ala Ser Met Leu Arg Asn Met Pro Leu
        195   200   205

Leu Glu Asn Leu Tyr Leu Gln Gly Asn Pro Trp Thr Cys Asp Cys Glu
    210   215   220

Met Arg Trp Phe Leu Glu Trp Asp Ala Lys Ser Arg Gly Ile Leu Lys
225   230   235   240

Cys Lys Lys Asp Lys Ala Tyr Glu Gly Gly Gln Leu Cys Ala Met Cys
            245   250   255

Phe Ser Pro Lys Lys Leu Tyr Lys His Glu Ile His Lys Leu Lys Asp
            260   265   270

108

```
Met Thr Cys Leu Lys Pro Ser Ile Glu Ser Pro Leu Arg Gln Asn Arg
        275                 280             285

Ser Arg Ser Ile Glu Glu Glu Gln Glu Gln Glu Glu Asp Gly Gly Ser
    290                 295             300

Gln Leu Ile Leu Glu Lys Phe Gln Leu Pro Gln Trp Ser Ile Ser Leu
305                 310             315                 320

Asn Met Thr Asp Glu His Gly Asn Met Val Asn Leu Val Cys Asp Ile
            325             330             335

Lys Lys Pro Met Asp Val Tyr Lys Ile His Leu Asn Gln Thr Asp Pro
        340             345             350

Pro Asp Ile Asp Ile Asn Ala Thr Val Ala Leu Asp Phe Glu Cys Pro
        355             360             365

Met Thr Arg Glu Asn Tyr Glu Lys Leu Trp Lys Leu Ile Ala Tyr Tyr
    370             375             380

Ser Glu Val Pro Val Lys Leu His Arg Glu Leu Met Leu Ser Lys Asp
385             390             395                 400

Pro Arg Val Ser Tyr Gln Tyr Arg Gln Asp Ala Asp Glu Glu Ala Leu
            405             410             415

Tyr Tyr Thr Gly Val Arg Ala Gln Ile Leu Ala Glu Pro Glu Trp Val
            420             425             430

Met Gln Pro Ser Ile Asp Ile Gln Leu Asn Arg Arg Gln Ser Thr Ala
        435             440             445

Lys Lys Val Leu Leu Ser Tyr Tyr Thr Gln Tyr Ser Gln Thr Ile Ser
    450             455             460

Thr Lys Asp Thr Arg Gln Ala Arg Gly Arg Ser Trp Val Met Ile Glu
465             470             475                 480

Pro Ser Gly Ala Val Gln Arg Asp Gln Thr Val Leu Glu Gly Gly Pro
            485             490             495

Cys Gln Leu Ser Cys Asn Val Lys Ala Ser Glu Ser Pro Ser Ile Phe
        500             505             510

Trp Val Leu Pro Asp Gly Ser Ile Leu Lys Ala Pro Met Asp Asp Pro
        515             520             525

Asp Ser Lys Phe Ser Ile Leu Ser Ser Gly Trp Leu Arg Ile Lys Ser
    530             535             540

Met Glu Pro Ser Asp Ser Gly Leu Tyr Gln Cys Ile Ala Gln Val Arg
545             550             555                 560

Asp Glu Met Asp Arg Met Val Tyr Arg Val Leu Val Gln Ser Pro Ser
            565             570             575
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109

```
Thr Gln Pro Ala Glu Lys Asp Thr Val Thr Ile Gly Lys Asn Pro Gly
        580                 585                 590

Glu Ser Val Thr Leu Pro Cys Asn Ala Leu Ala Ile Pro Glu Ala His
        595                 600                 605

Leu Ser Trp Ile Leu Pro Asn Arg Arg Ile Ile Asn Asp Leu Ala Asn
        610                 615                 620

Thr Ser His Val Tyr Met Leu Pro Asn Gly Thr Leu Ser Ile Pro Lys
625                 630                 635                 640

Val Gln Val Ser Asp Ser Gly Tyr Tyr Arg Cys Val Ala Val Asn Gln
            645                 650                 655

Gln Gly Ala Asp His Phe Thr Val Gly Ile Thr Val Thr Lys Lys Gly
            660                 665                 670

Ser Gly Leu Pro Ser Lys Arg Gly Arg Arg Pro Gly Ala Lys Ala Leu
        675                 680                 685

Ser Arg Val Arg Glu Asp Ile Val Glu Asp Glu Gly Gly Ser Gly Met
    690                 695                 700

Gly Asp Glu Glu Asn Thr Ser Arg Arg Leu Leu His Pro Lys Asp Gln
705                 710                 715                 720

Glu Val Phe Leu Lys Thr Lys Asp Asp Ala Ile Asn Gly Asp Lys Lys
            725                 730                 735

Ala Lys Lys Gly Arg Arg Lys Leu Lys Leu Trp Lys His Ser Glu Lys
            740                 745                 750

Glu Pro Glu Thr Asn Val Ala Glu Gly Arg Arg Val Phe Glu Ser Arg
        755                 760                 765

Arg Arg Ile Asn Met Ala Asn Lys Gln Ile Asn Pro Glu Arg Trp Ala
    770                 775                 780

Asp Ile Leu Ala Lys Val Arg Gly Lys Asn Leu Pro Lys Gly Thr Glu
785                 790                 795                 800

Val Pro Pro Leu Ile Lys Thr Thr Ser Pro Pro Ser Leu Ser Leu Glu
            805                 810                 815

Val Thr Pro Pro Phe Pro Ala Val Ser Pro Pro Ser Ala Ser Pro Val
        820                 825                 830

Gln Thr Val Thr Ser Ala Glu Glu Ser Ser Ala Asp Val Pro Leu Leu
        835                 840                 845

Gly Glu Glu Glu His Val Leu Gly Thr Ile Ser Ser Ala Ser Met Gly
    850                 855                 860

Leu Glu His Asn His Asn Gly Val Ile Leu Val Glu Pro Glu Val Thr
865                 870                 875                 880
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110

```
Ser Thr Pro Leu Glu Glu Val Val Asp Asp Leu Ser Glu Lys Thr Glu
            885             890             895

Glu Ile Thr Ser Thr Glu Gly Asp Leu Lys Gly Thr Ala Ala Pro Thr
            900             905             910

Leu Ile Ser Glu Pro Tyr Glu Pro Ser Pro Thr Leu His Thr Leu Asp
            915             920             925

Thr Val Tyr Glu Lys Pro Thr His Glu Glu Thr Ala Thr Glu Gly Trp
    930             935             940

Ser Ala Ala Asp Val Gly Ser Ser Pro Glu Pro Thr Ser Ser Glu Tyr
945             950             955             960

Glu Pro Pro Leu Asp Ala Val Ser Leu Ala Glu Ser Glu Pro Met Gln
            965             970             975

Tyr Phe Asp Pro Asp Leu Glu Thr Lys Ser Gln Pro Asp Glu Asp Lys
            980             985             990

Met Lys Glu Asp Thr Phe Ala His  Leu Thr Pro Thr Pro  Thr Ile Trp
        995             1000            1005

Val Asn  Asp Ser Ser Thr Ser  Gln Leu Phe Glu Asp  Ser Thr Ile
    1010            1015            1020

Gly Glu  Pro Gly Val Pro Gly  Gln Ser His Leu Gln  Gly Leu Thr
    1025            1030            1035

Asp Asn  Ile His Leu Val Lys  Ser Ser Leu Ser Thr  Gln Asp Thr
    1040            1045            1050

Leu Leu  Ile Lys Lys Gly Met  Lys Glu Met Ser Gln  Thr Leu Gln
    1055            1060            1065

Gly Gly  Asn Met Leu Glu Gly  Asp Pro Thr His Ser  Arg Ser Ser
    1070            1075            1080

Glu Ser  Glu Gly Gln Glu Ser  Lys Ser Ile Thr Leu  Pro Asp Ser
    1085            1090            1095

Thr Leu  Gly Ile Met Ser Ser  Met Ser Pro Val Lys  Lys Pro Ala
    1100            1105            1110

Glu Thr  Thr Val Gly Thr Leu  Leu Asp Lys Asp Thr  Thr Thr Val
    1115            1120            1125

Thr Thr  Thr Pro Arg Gln Lys  Val Ala Pro Ser Ser  Thr Met Ser
    1130            1135            1140

Thr His  Pro Ser Arg Arg Arg  Pro Asn Gly Arg Arg  Arg Leu Arg
    1145            1150            1155

Pro Asn  Lys Phe Arg His Arg  His Lys Gln Thr Pro  Pro Thr Thr
    1160            1165            1170
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111

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Phe Ala  Pro Ser Glu Thr Phe  Ser Thr Gln Pro Thr  Gln Ala Pro
    1175             1180             1185

Asp Ile  Lys Ile Ser Ser Gln  Val Glu Ser Ser Leu  Val Pro Thr
    1190             1195             1200

Ala Trp  Val Asp Asn Thr Val  Asn Thr Pro Lys Gln  Leu Glu Met
    1205             1210             1215

Glu Lys  Asn Ala Glu Pro Thr  Ser Lys Gly Thr Pro  Arg Arg Lys
    1220             1225             1230

His Gly  Lys Arg Pro Asn Lys  His Arg Tyr Thr Pro  Ser Thr Val
    1235             1240             1245

Ser Ser  Arg Ala Ser Gly Ser  Lys Pro Ser Pro Ser  Pro Glu Asn
    1250             1255             1260

Lys His  Arg Asn Ile Val Thr  Pro Ser Ser Glu Thr  Ile Leu Leu
    1265             1270             1275

Pro Arg  Thr Val Ser Leu Lys  Thr Glu Gly Pro Tyr  Asp Ser Leu
    1280             1285             1290

Asp Tyr  Met Thr Thr Thr Arg  Lys Ile Tyr Ser Ser  Tyr Pro Lys
    1295             1300             1305

Val Gln  Glu Thr Leu Pro Val  Thr Tyr Lys Pro Thr  Ser Asp Gly
    1310             1315             1320

Lys Glu  Ile Lys Asp Asp Val  Ala Thr Asn Val Asp  Lys His Lys
    1325             1330             1335

Ser Asp  Ile Leu Val Thr Gly  Glu Ser Ile Thr Asn  Ala Ile Pro
    1340             1345             1350

Thr Ser  Arg Ser Leu Val Ser  Thr Met Gly Glu Phe  Lys Glu Glu
    1355             1360             1365

Ser Ser  Pro Val Gly Phe Pro  Gly Thr Pro Thr Trp  Asn Pro Ser
    1370             1375             1380

Arg Thr  Ala Gln Pro Gly Arg  Leu Gln Thr Asp Ile  Pro Val Thr
    1385             1390             1395

Thr Ser  Gly Glu Asn Leu Thr  Asp Pro Pro Leu Leu  Lys Glu Leu
    1400             1405             1410

Glu Asp  Val Asp Phe Thr Ser  Glu Phe Leu Ser Ser  Leu Thr Val
    1415             1420             1425

Ser Thr  Pro Phe His Gln Glu  Glu Ala Gly Ser Ser  Thr Thr Leu
    1430             1435             1440

Ser Ser  Ile Lys Val Glu Val  Ala Ser Ser Gln Ala  Glu Thr Thr
    1445             1450             1455
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Thr Leu  Asp Gln Asp His Leu  Glu Thr Thr Val Ala  Ile Leu Leu
    1460              1465              1470

Ser Glu  Thr Arg Pro Gln Asn  His Thr Pro Thr Ala  Ala Arg Met
    1475              1480              1485

Lys Glu  Pro Ala Ser Ser Ser  Pro Ser Thr Ile Leu  Met Ser Leu
    1490              1495              1500

Gly Gln  Thr Thr Thr Thr Lys  Pro Ala Leu Pro Ser  Pro Arg Ile
    1505              1510              1515

Ser Gln  Ala Ser Arg Asp Ser  Lys Glu Asn Val Phe  Leu Asn Tyr
    1520              1525              1530

Val Gly  Asn Pro Glu Thr Glu  Ala Thr Pro Val Asn  Asn Glu Gly
    1535              1540              1545

Thr Gln  His Met Ser Gly Pro  Asn Glu Leu Ser Thr  Pro Ser Ser
    1550              1555              1560

Asp Arg  Asp Ala Phe Asn Leu  Ser Thr Lys Leu Glu  Leu Glu Lys
    1565              1570              1575

Gln Val  Phe Gly Ser Arg Ser  Leu Pro Arg Gly Pro  Asp Ser Gln
    1580              1585              1590

Arg Gln  Asp Gly Arg Val His  Ala Ser His Gln Leu  Thr Arg Val
    1595              1600              1605

Pro Ala  Lys Pro Ile Leu Pro  Thr Ala Thr Val Arg  Leu Pro Glu
    1610              1615              1620

Met Ser  Thr Gln Ser Ala Ser  Arg Tyr Phe Val Thr  Ser Gln Ser
    1625              1630              1635

Pro Arg  His Trp Thr Asn Lys  Pro Glu Ile Thr Thr  Tyr Pro Ser
    1640              1645              1650

Gly Ala  Leu Pro Glu Asn Lys  Gln Phe Thr Thr Pro  Arg Leu Ser
    1655              1660              1665

Ser Thr  Thr Ile Pro Leu Pro  Leu His Met Ser Lys  Pro Ser Ile
    1670              1675              1680

Pro Ser  Lys Phe Thr Asp Arg  Arg Thr Asp Gln Phe  Asn Gly Tyr
    1685              1690              1695

Ser Lys  Val Phe Gly Asn Asn  Asn Ile Pro Glu Ala  Arg Asn Pro
    1700              1705              1710

Val Gly  Lys Pro Pro Ser Pro  Arg Ile Pro His Tyr  Ser Asn Gly
    1715              1720              1725

Arg Leu  Pro Phe Phe Thr Asn  Lys Thr Leu Ser Phe  Pro Gln Leu
    1730              1735              1740
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113

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Gly Val  Thr Arg Arg Pro Gln  Ile Pro Thr Ser Pro  Ala Pro Val
    1745                1750                1755

Met Arg  Glu Arg Lys Val Ile  Pro Gly Ser Tyr Asn  Arg Ile His
    1760                1765                1770

Ser His  Ser Thr Phe His Leu  Asp Phe Gly Pro Pro  Ala Pro Pro
    1775                1780                1785

Leu Leu  His Thr Pro Gln Thr  Thr Gly Ser Pro Ser  Thr Asn Leu
    1790                1795                1800

Gln Asn  Ile Pro Met Val Ser  Ser Thr Gln Ser Ser  Ile Ser Phe
    1805                1810                1815

Ile Thr  Ser Ser Val Gln Ser  Ser Gly Ser Phe His  Gln Ser Ser
    1820                1825                1830

Ser Lys  Phe Phe Ala Gly Gly  Pro Pro Ala Ser Lys  Phe Trp Ser
    1835                1840                1845

Leu Gly  Glu Lys Pro Gln Ile  Leu Thr Lys Ser Pro  Gln Thr Val
    1850                1855                1860

Ser Val  Thr Ala Glu Thr Asp  Thr Val Phe Pro Cys  Glu Ala Thr
    1865                1870                1875

Gly Lys  Pro Lys Pro Phe Val  Thr Trp Thr Lys Val  Ser Thr Gly
    1880                1885                1890

Ala Leu  Met Thr Pro Asn Thr  Arg Ile Gln Arg Phe  Glu Val Leu
    1895                1900                1905

Lys Asn  Gly Thr Leu Val Ile  Arg Lys Val Gln Val  Gln Asp Arg
    1910                1915                1920

Gly Gln  Tyr Met Cys Thr Ala  Ser Asn Leu His Gly  Leu Asp Arg
    1925                1930                1935

Met Val  Val Leu Leu Ser Val  Thr Val Gln Gln Pro  Gln Ile Leu
    1940                1945                1950

Ala Ser  His Tyr Gln Asp Val  Thr Val Tyr Leu Gly  Asp Thr Ile
    1955                1960                1965

Ala Met  Glu Cys Leu Ala Lys  Gly Thr Pro Ala Pro  Gln Ile Ser
    1970                1975                1980

Trp Ile  Phe Pro Asp Arg Arg  Val Trp Gln Thr Val  Ser Pro Val
    1985                1990                1995

Glu Ser  Arg Ile Thr Leu His  Glu Asn Arg Thr Leu  Ser Ile Lys
    2000                2005                2010

Glu Ala  Ser Phe Ser Asp Arg  Gly Val Tyr Lys Cys  Val Ala Ser
    2015                2020                2025
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Asn Ala  Ala Gly Ala Asp Ser  Leu Ala Ile Arg Leu  His Val Ala
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Ala Leu  Pro Pro Val Ile His  Gln Glu Lys Leu Glu  Asn Ile Ser
    2045             2050             2055

Leu Pro  Pro Gly Leu Ser Ile  His Ile His Cys Thr  Ala Lys Ala
    2060             2065             2070

Ala Pro  Leu Pro Ser Val Arg  Trp Val Leu Gly Asp  Gly Thr Gln
    2075             2080             2085

Ile Arg  Pro Ser Gln Phe Leu  His Gly Asn Leu Phe  Val Phe Pro
    2090             2095             2100

Asn Gly  Thr Leu Tyr Ile Arg  Asn Leu Ala Pro Lys  Asp Ser Gly
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Arg Tyr  Glu Cys Val Ala Ala  Asn Leu Val Gly Ser  Ala Arg Arg
    2120             2125             2130

Thr Val  Gln Leu Asn Val Gln  Arg Ala Ala Ala Asn  Ala Arg Ile
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Thr Gly  Thr Ser Pro Arg Arg  Thr Asp Val Arg Tyr  Gly Gly Thr
    2150             2155             2160

Leu Lys  Leu Asp Cys Ser Ala  Ser Gly Asp Pro Trp  Pro Arg Ile
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Leu Trp  Arg Leu Pro Ser Lys  Arg Met Ile Asp Ala  Leu Phe Ser
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Phe Asp  Ser Arg Ile Lys Val  Phe Ala Asn Gly Thr  Leu Val Val
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Lys Ser  Val Thr Asp Lys Asp  Ala Gly Asp Tyr Leu  Cys Val Ala
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Arg Asn  Lys Val Gly Asp Asp  Tyr Val Val Leu Lys  Val Asp Val
    2225             2230             2235

Val Met  Lys Pro Ala Lys Ile  Glu His Lys Glu Glu  Asn Asp His
    2240             2245             2250

Lys Val  Phe Tyr Gly Gly Asp  Leu Lys Val Asp Cys  Val Ala Thr
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Gly Leu  Pro Asn Pro Glu Ile  Ser Trp Ser Leu Pro  Asp Gly Ser
    2270             2275             2280

Leu Val  Asn Ser Phe Met Gln  Ser Asp Asp Ser Gly  Gly Arg Thr
    2285             2290             2295

Lys Arg  Tyr Val Val Phe Asn  Asn Gly Thr Leu Tyr  Phe Asn Glu
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Val Gly Met Arg Glu Glu Gly Asp Tyr Thr Cys Phe Ala Glu Asn
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Gln Val Gly Lys Asp Glu Met Arg Val Arg Val Lys Val Val Thr
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Ala Pro Ala Thr Ile Arg Asn Lys Thr Tyr Leu Ala Val Gln Val
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Pro Tyr Gly Asp Val Val Thr Val Ala Cys Glu Ala Lys Gly Glu
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Pro Met Pro Lys Val Thr Trp Leu Ser Pro Thr Asn Lys Val Ile
    2375   2380   2385

Pro Thr Ser Ser Glu Lys Tyr Gln Ile Tyr Gln Asp Gly Thr Leu
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Leu Ile Gln Lys Ala Gln Arg Ser Asp Ser Gly Asn Tyr Thr Cys
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Leu Val Arg Asn Ser Ala Gly Glu Asp Arg Lys Thr Val Trp Ile
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His Val Asn Val Gln Pro Pro Lys Ile Asn Gly Asn Pro Asn Pro
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Ile Thr Thr Val Arg Glu Ile Ala Ala Gly Gly Ser Arg Lys Leu
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Ile Asp Cys Lys Ala Glu Gly Ile Pro Thr Pro Arg Val Leu Trp
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Ala Phe Pro Glu Gly Val Val Leu Pro Ala Pro Tyr Tyr Gly Asn
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Arg Ile Thr Val His Gly Asn Gly Ser Leu Asp Ile Arg Ser Leu
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Arg Lys Ser Asp Ser Val Gln Leu Val Cys Met Ala Arg Asn Glu
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Gly Gly Glu Ala Arg Leu Ile Val Gln Leu Thr Val Leu Glu Pro
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Met Glu Lys Pro Ile Phe His Asp Pro Ile Ser Glu Lys Ile Thr
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Ala Met Ala Gly His Thr Ile Ser Leu Asn Cys Ser Ala Ala Gly
    2555   2560   2565

Thr Pro Thr Pro Ser Leu Val Trp Val Leu Pro Asn Gly Thr Asp
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Leu Gln Ser Gly Gln Gln Leu Gln Arg Phe Tyr His Lys Ala Asp
    2585   2590   2595

116

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Gly Met  Leu His Ile Ser Gly  Leu Ser Ser Val Asp  Ala Gly Ala
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Tyr Arg  Cys Val Ala Arg Asn  Ala Ala Gly His Thr  Glu Arg Leu
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Val Ser  Leu Lys Val Gly Leu  Lys Pro Glu Ala Asn  Lys Gln Tyr
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His Asn  Leu Val Ser Ile Ile  Asn Gly Glu Thr Leu  Lys Leu Pro
    2645                 2650                 2655

Cys Thr  Pro Pro Gly Ala Gly  Gln Gly Arg Phe Ser  Trp Thr Leu
    2660                 2665                 2670

Pro Asn  Gly Met His Leu Glu  Gly Pro Gln Thr Leu  Gly Arg Val
    2675                 2680                 2685

Ser Leu  Leu Asp Asn Gly Thr  Leu Thr Val Arg Glu  Ala Ser Val
    2690                 2695                 2700

Phe Asp  Arg Gly Thr Tyr Val  Cys Arg Met Glu Thr  Glu Tyr Gly
    2705                 2710                 2715

Pro Ser  Val Thr Ser Ile Pro  Val Ile Val Ile Ala  Tyr Pro Pro
    2720                 2725                 2730

Arg Ile  Thr Ser Glu Pro Thr  Pro Val Ile Tyr Thr  Arg Pro Gly
    2735                 2740                 2745

Asn Thr  Val Lys Leu Asn Cys  Met Ala Met Gly Ile  Pro Lys Ala
    2750                 2755                 2760

Asp Ile  Thr Trp Glu Leu Pro  Asp Lys Ser His Leu  Lys Ala Gly
    2765                 2770                 2775

Val Gln  Ala Arg Leu Tyr Gly  Asn Arg Phe Leu His  Pro Gln Gly
    2780                 2785                 2790

Ser Leu  Thr Ile Gln His Ala  Thr Gln Arg Asp Ala  Gly Phe Tyr
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Lys Cys  Met Ala Lys Asn Ile  Leu Gly Ser Asp Ser  Lys Thr Thr
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Tyr Ile  His Val Phe
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118

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119

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121

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122

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